MARKET FORECAST AND ANALYSIS OF THE PROFESSIONAL SERVICES SECTOR

INCLUDING VENDOR-SITE SYSTEMS OPERATIONS PROFESSIONAL SERVICES ANALYSIS

SAN FRANCISCO
NEW YORK
WASHINGTON, D.C.
LONDON
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TOKYO

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Including Vendor-Site Systems Operations Professional Services Analysis

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AUGUST 1991

MARKET FORECAST AND ANALYSIS OF THE PROFESSIONAL SERVICES SECTOR,

INCLUDING VENDOR-SITE
SYSTEMS OPERATIONS
PROFESSIONAL SERVICES ANALYSIS

For
MARKET INTELLIGENCE
INTERNATIONAL BUSINESS MACHINES
Valhalla, New York

INPUT®

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Introduction

Introduction

A

Objectives

IBM has been a long-time subscriber to INPUT's Market Analysis Program, which sizes, analyzes, and forecasts the U.S. information services market. The Market Analysis Program analyzes the market in terms of delivery mode (e.g., professional services, software products, processing, etc.) as well as by market (e.g., vertical market).

In addition to this type of information delivery, IBM needs to bring together into one place all INPUT's information related to the professional services market. For this purpose IBM has requested that INPUT regroup and reanalyze previously-assembled data and analysis to focus specifically on professional services. The reasons for doing so include:

- To produce a finer granularity in market sizing and forecasting, especially for professional service delivery sub-modes by vertical market and leading vendors and associated market share by vertical market.
- To identify issues that are driving specific segments of professional services (by sub-mode and/or vertical industries).
- To apply IBM vertical industry segmentation/definitions, where they differ from INPUT's.
- To apply IBM's economic assumptions.

The reanalysis of information contained in this report provides IBM a single-point information source that unites market sizing, forecasting, competitive analysis, and sector trend analyses

B

Scope

Professional services (including the professional services component of systems integration) and systems operations (processing) are segmented for the purposes of this report into 24 industry groups, as described in the IBM-supplied document *"Industry Classification Codes."* Within each industry, the professional services data is allocated into professional services "sub-modes":

- Consulting
- Software Development
- Education and Training
- Systems Operations

Note: The professional service component of systems integration is allocated among the four sub-modes above, as well as being separately summarized.

INPUT's systems integration forecasts include the information technology portions of the Federal Government budgets for defense and civil agencies. The application of most "off-the-shelf" technology is included. Milspec Systems and commercial systems that are embedded in weapons platforms are not included in INPUT's market forecasts. In addition, INPUT does not attempt to acquire and forecast the information technology and services used in classified systems.

A parallel analysis of systems operations - processing services for each industry segment is provided to compliment the services component of systems operation (i.e., that provided at the customer's site) with the processing services component of systems operation (i.e., that provided at the vendor's site).

The following information is supplied by professional services sub-modes as well as for systems operations - processing services for each industry:

- Market size
- Leading vendors and their market share. Note: Generally, specific market share information is shown for five vendors or for at least half the applicable market (whichever is larger).
- Other vendors active in a market.
- "Up and coming" vendors: i.e., those that may not yet be among the market leaders but have a unique or compelling approach and/or have targeted a particular market.

Information is also provided on key applications in each industry.

A discussion of professional services-related issues in each industry analysis is included. These issues include:

- Trends, technology impacts, etc.
- Reasons for a vertical market being significantly above or below average.
- Reasons for vendor success, vendor strategies, etc.
- Generally, industry market trends are not discussed except for those that directly affect professional services or systems operations such as the upheavals in retail department stores profitability during the past year.

Where systems operations issues are different from professional services issues, these are distinguished and discussed.

In cases where there have been changes in market sizing/forecasts from prior years, this is noted and analyzed. (Generally, if the change is significant in terms of size or direction, this is discussed in the main text; small, technical changes will be explained in a "Reconciliation" appendix.)

The basic source for information has been INPUT's 1989/1990 Market Analysis Program reports, data bases, and underlying analyses. Analysis and secondary research has been performed as required (for example, to identify and spread professional services revenues of particular vendors).

Vendor data given is for 1990 and is calendarized as necessary. In some cases, vendor data, especially for industry allocations, is preliminary and/or estimated.

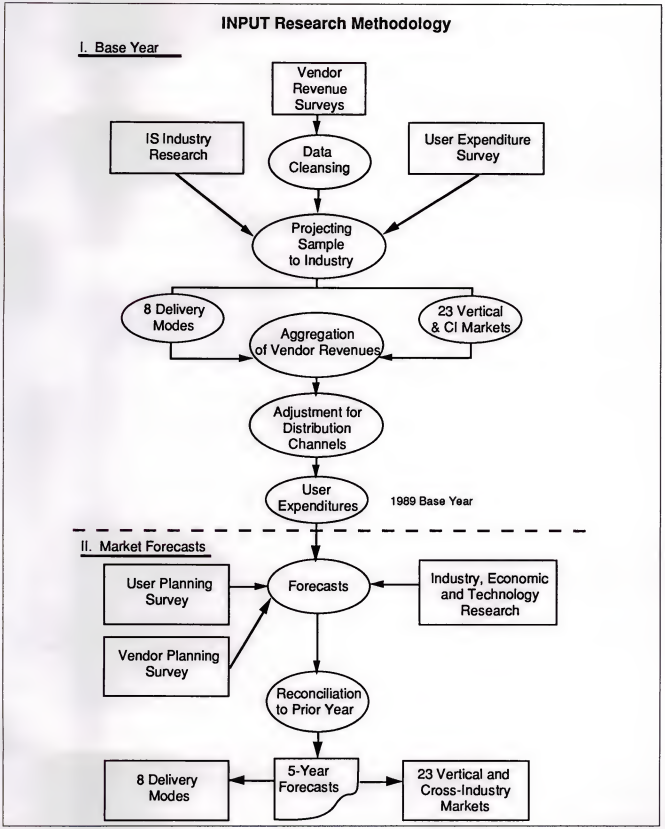
C
Methodology

This report is a combination of INPUT's IS forecasts, quantitative analysis, factual information, and industry knowledge.

1. Introduction

During 1989 and 1990 INPUT conducted in-depth interviews with 600 information services vendors, including nearly all of the largest 224 firms, with revenues of $20 million or more. These surveys and estimates provided the initial vendor revenue estimates for 1990. Total base year 1990 actual or forecast revenues are then summed into eight delivery modes and 16 vertical and seven cross-industry segments for closer analysis and five-year projections. Only U.S revenues and professional services non-captive revenues were examined for this forecast. Conversion factors were applied to convert the vendor revenues to user expenditures. The conversion factors used for the information in this report can be found in the report *U.S. Professional Services Markets, 1990-1995.*

Exhibit I-1 depicts the INPUT research methodology used in preparing the INPUT IS forecasts.



2. Quantitative Analysis

a. INPUT created 16 worksheets, one for each major industry sector as defined by INPUT. Each worksheet contained the following information:

- A list of the two-digit Standard Industrial Classification(SIC) codes that comprise the industry sector.
- For each INPUT-defined sector, a crosswalk definition of the IBM-defined industry sector or sectors.
- An algorithm was developed for moving the INPUT-defined sector data to the appropriate IBM-defined sector or sectors.
- Where sectors do not match, an allocation factor was derived from SIC data from the U.S. Department of Commerce and INPUT's judgment of professional services market potential.

b. A computer program was applied to INPUT's data base to:

- Delete the INPUT inflation factors from the original INPUT professional services market forecast.
- Algorithms executed to segment the INPUT data and recast it in the IBM format.
- Apply the IBM-defined inflation factors.
- Create the new forecast data in the format defined by IBM for each of the 24 industry sectors.
- Create the new forecast data for each of the four professional services delivery modes as well as for the system operations - processing mode services.

c. All data was reviewed for reasonableness.

D

Factual Information

INPUT assembled the following from its data bases and vendor files:

- Vendors in a particular industry sector, with sizing as reported in INPUT's data bases.
- "Up and coming" vendors.

- Contract information as identified in INPUT's "Corporate Project Data Base," information from the study *The Future of Information Systems Management*, and data collected from vendors for INPUT's Vendor Analysis Program and Systems Integration Program.

E

Industry Knowledge

Knowledge of the information services industry, professional services, and individual industry sectors was added throughout the project. Tasks where this knowledge will be applied include:

- Allocation between INPUT-defined and IBM-defined industry sectors.
- Review of market size crosswalks.
- Allocation of particular vendor revenues across industries.
- Allocation of particular vendor revenues across sub-modes.
- Vendor strategies and positioning.
- Identification of applications by industry and sub-mode.
- Identification of, and rationale for, "up and coming" vendors.
- Classification of contracts between "professional services," "systems integration," and "systems operations."
- Issue and trend identification.

Professional Services Market Overview

Professional Services Market Overview

A

Industry Forecast, 1991-1996

The INPUT forecast for the professional services, systems operations (processing), and systems integration markets are shown in Table 1 of the Appendix. There are many factors driving these forecasts, including the following.

1. Professional Services

Increasing use of information services in business operations requires new and/or modified applications. This demand cannot be rapidly met with current internal IS personnel in most firms since there is a current backlog of work and the complexity of new or changing applications requires education of and research by current IS and user personnel.

Mergers, acquisitions and reorganizations among user organizations leads to demand for service vendors. Linking disparate mission-critical systems and applications is required to solve major problems. This heightens user interest in professional services capabilities.

The lack of skilled personnel at user sites creates a demand for professional services vendors who have the resources to recruit and train personnel with specialized IS capabilities.

New technologies have driven, and continue to drive the demand for professional services. Users cannot implement and stabilize technologies rapidly enough to take advantage of new capabilities.

Professional services began to feel an impact when worsening economic conditions overtook sectors of business, particularly retail areas, in early 1990. Weakness spread to other business sectors including transportation and manufacturing. The impact on professional services should decrease as recovery from the recession takes place later this year.

2. Systems Operations

The major factors driving the SO market include the possibility of reducing and controlling corporate expenditures for information technology by letting a vendor with more experience in system planning take responsibility for providing adequate resources to accomplish required operational loads. This reduces the risks of utilizing information technology and frees internal resources and investment capital for strategic activities.

3. Systems Integration

Competitive pressures are forcing organizations to seek the aid of vendors experienced in their industries and in needed applications to examine their core business and identify business solutions that can help to differentiate products and services in the market. In many cases, the application of technology can make the difference in offering services faster or reducing product development time and cost.

Another factor driving the use of systems integration is that an increasing amount of IS expenditures are no longer being controlled exclusively by the IS organizations. The users are becoming the buyers of IS solutions and control the budgets for these projects. Systems Integrators with good track records provide an attractive alternative to internal IS organizations to develop systems that will meet the user's requirements.

B

Service Submode Forecast

The submode forecasts are presented as subsets of the industry forecasts in Appendix A. Professional Services, by INPUT's traditional definition, includes software development, consulting, education and training. Systems operations, traditionally referred to as facilities management, is also included although INPUT now includes this as part of systems operations.

Systems integration includes a hardware component and a professional services component. This analysis focuses on the professional services portion of SI, excluding the revenue from computer and communications hardware. This professional services portion is presented as the components of software development, design/integration, project management/consulting, education and training, operations/maintenance, software products, and other services.

C

Key Applications

Key applications for each industry are listed in Exhibit II-1, first by "generic" application category and then, as appropriate, by specific industry system. In general, the exhibit indicates that the applications to which professional services are being applied are "diagonal" in nature; that is, applications with similar functionality are required in multiple industries. To be sure, each industry has specific requirements for the application, creating the diagonal notion.

D

Competition

1. Major Vendors in Professional Services

Exhibit II-2 presents the largest professional services vendors and their respective market share by sub-mode of service. While literally thousands of professional firms exist, the market is dominated by about 35 vendors in the $100 million club.

2. Systems Operations Vendors

Exhibit II-2a presents the systems operations vendors and their respective market share.

3. Major Vendors by Industry

An analysis of the top 10 vendors in each vertical market (See Exhibit II-3) indicates that about 25 vendors are in the top tier in multiple industries and only 13 of these are among the top in more than five industries. In total, about 66 different vendors top the revenue list for the 24 industries.

EXHIBIT II-1: KEY APPLICATIONS BY INDUSTRY

APPLICATION CATEGORY	INDUSTRY APPLICATION	MANUFACTURING	AUTOMOTIVE	AEROSPACE	ELECT. MACH.	PROCESS	CONSUMER	CHEM/PHARM	PETROLEUM	COMMUN	COMPUTER
Accounting & Finance	Accounting	X	X	X	X	X	X	X	X	X	X
	MRP and Related	X	X	X	X	X		X			
Billing/Processing	Billing									X	
	Card Processing								X	X	
	Claims Processing										
	Clearance & Settlement										
	Collection, Assessment										
	Collection/Analysis						X	X		X	
	Patient Management										
	Payment Processing										
	Reservation Systems										
Customer Service	Customer Service	X	X		X	X	X	X		X	
Data Collections	Automatic Meter Reading										
	Order Entry	X	X	X	X	X	X	X	X		
	POS & Related										
Human Resources	Benefits Administration	X	X	X	X	X	X	X	X	X	
	Ed. Process Monitoring										
	Employee Training									X	X
	Personnel Management										
Marketing	Marketing						X				X
	Merchandising										
Office Info System	Agent Systems										
	Decision Support						X				
	Desktop Publishing										
	Integrated Publishing										
	Integrated Communications										
	Integrated Hospital Sys.										
	Networks	X	X	X	X		X			X	
	Office Information Systems										

EXHIBIT II-1: KEY APPLICATIONS BY INDUSTRY

APPLICATION CATEGORY	INDUSTRY APPLICATION	MANUFACTURING	AUTOMOTIVE	AEROSPACE	ELECT. MACH.	PROCESS	CONSUMER	CHEM/PHARM	PETROLEUM	COMMUN	COMPUTER
Operation Automation	Application Development										X
	Automated Warehouse	X	X	X	X		X	X			
	CAD/CAE	X	X	X	X						
	Consumer Loan										
	Correspondent Banking										
	Integrated Logistics										
	Inventory Management	X	X	X	X	X	X	X	X		
	Laboratory Automation							X			
	List Management						X				
	Operations	X	X		X	X					
	Portfolio Management										
	Process Control					X		X	X		
	Public Safety & CAD										
	Securities Transfer										
	Trading & Funds Systems										
Tracking & Analysis	Audience Analysis						X				
	Case Load Management										
	Court & Criminal Justice										
	Geographic Info Systems										
	Maintenance Scheduling					X		X	X	X	
	Linear Programming			X			X	X	X		
	Planning			X						X	
	Plant Maintenance	X	X	X	X	X	X				
	Project Management		X	X							
	Records Management										
	Risk Analysis										
	Work Schedule, Management										

EXHIBIT II-1: KEY APPLICATIONS BY INDUSTRY

APPLICATION CATEGORY	INDUSTRY APPLICATION	CONSULTANTS	HEALTH	HIGHER ED	MEDIA	SCHOOLS	S & L GOV'T	TRANSPORT	UTILITIES	WHOLESALE	RETAIL
Accounting & Finance	Accounting	X	X	X	X	X	X	X	X	X	X
	MRP and Related									X	X
Billing/Processing	Billing		X		X			X	X	X	X
	Card Processing										
	Claims Processing										
	Clearance & Settlement										
	Collection, Assessment						X				
	Collection/Analysis		X								X
	Patient Management		X								
	Payment Processing										
	Reservation Systems							X			
Customer Service	Customer Service								X	X	X
Data Collections	Automatic Meter Reading								X		
	Order Entry									X	X
	POS & Related									X	X
Human Resources	Benefits Administration			X				X			
	Ed. Process Monitoring					X					
	Employee Training	X									
	Personnel Management			X							
Marketing	Marketing				X			X	X	X	X
	Merchandising										X
Office Info System	Agent Systems										
	Decision Support	X									
	Desktop Publishing	X			X	X					
	Integrated Publishing				X						
	Integrated Communications			X							
	Integrated Hospital Sys.		X								
	Networks			X			X			X	
	Office Information Systems	X				X					

EXHIBIT II-1: KEY APPLICATIONS BY INDUSTRY

APPLICATION CATEGORY	INDUSTRY APPLICATION	CONSULTANTS	HEALTH	HIGHER ED	MEDIA	SCHOOLS	S & L GOV'T	TRANSPORT	UTILITIES	WHOLESALE	RETAIL
Operation Automation	Application Development										
	Automated Warehouse									X	X
	CAD/CAE								X		
	Consumer Loan										
	Correspondent Banking										
	Integrated Logistics									X	
	Inventory Management										
	Laboratory Automation		X								
	List Management				X						
	Operations										
	Portfolio Management										
	Process Control										
	Public Safety & CAD						X				
	Securities Transfer										
	Trading & Funds Systems										
Tracking & Analysis	Audience Analysis				X						
	Case Load Management						X				
	Court & Criminal Justice						X				
	Geographic Info Systems						X		X		X
	Maintenance Scheduling										
	Linear Programming										
	Planning										
	Plant Maintenance										
	Project Management	X									
	Records Management						X				
	Risk Analysis										
	Work Schedule, Management										

EXHIBIT II-1: KEY APPLICATIONS BY INDUSTRY

APPLICATION CATEGORY	INDUSTRY APPLICATION	FIN/BANK	INSURANCE	SECURITIES	FEDERAL
Accounting & Finance	Accounting	X	X	X	X
	MRP and Related				
Billing/Processing	Billing	X			
	Card Processing	X			
	Claims Processing		X		
	Clearance & Settlement	X		X	
	Collection, Assessment				
	Collection/Analysis	X			
	Patient Management				
	Payment Processing		X		
	Reservation Systems				
Customer Service	Customer Service				
Data Collections	Automatic Meter Reading				
	Order Entry				
	POS & Related	X			
Human Resources	Benefits Administration	X			
	Ed. Process Monitoring				
	Employee Training				
	Personnel Management				
Marketing	Marketing		X		
	Merchandising				
Office Info System	Agent Systems		X		
	Decision Support	X			
	Desktop Publishing				
	Integrated Publishing				
	Integrated Communications				
	Integrated Hospital Sys.				
	Networks				
	Office Information Systems				X

EXHIBIT II-1: KEY APPLICATIONS BY INDUSTRY

APPLICATION CATEGORY	INDUSTRY APPLICATION	FIN/BANK	INSURANCE	SECURITIES	FEDERAL
Operation Automation	Application Development				
	Automated Warehouse				
	CAD/CAE				
	Consumer Loan	X			
	Correspondent Banking	X			
	Integrated Logistics				X
	Inventory Management				
	Laboratory Automation				
	List Management				
	Operations				
	Portfolio Management	X	X	X	
	Process Control				
	Public Safety & CAD				
	Securities Transfer	X		X	
	Trading & Funds Systems	X	X	X	
Tracking & Analysis	Audience Analysis				
	Case Load Management				
	Court & Criminal Justice				
	Geographic Info Systems				
	Maintenance Scheduling				
	Linear Programming				
	Planning				
	Plant Maintenance				
	Project Management				
	Records Management				X
	Risk Analysis		X		
	Work Schedule, Management				X

EXHIBIT II-2: 1990 COMPETITIVE MARKET STRUCTURE - GRAND TOTAL

VENDOR	CONSULTING ($M)	CONSULTING (%)	SOFTWARE DEVELOPMENT ($M)	SOFTWARE DEVELOPMENT (%)	EDUCATION & TRAINING ($M)	EDUCATION & TRAINING (%)	SYSTEMS OPERATIONS (SERVICES) ($M)	SYSTEMS OPERATIONS (SERVICES) (%)	TOTAL PROFESSIONAL SERVICES ($M)	TOTAL PROFESSIONAL SERVICES (%)	SYSTEMS OPERATIONS (PROCESSING) ($M)	SYSTEMS OPERATIONS (PROCESSING) (%)	SYSTEMS INTEGRATION (PROF. SVC. MARKET) 1 ($M)	SYSTEMS INTEGRATION (PROF. SVC. MARKET) 1 (%)
International Business Machines	235	5%	507	4%	154	6%	58	3%	954	4%	76	2%	302	9%
Andersen Consulting	210	4%	482	4%	142	5%	44	2%	877	4%	57	1%	432	13%
Computer Sciences Corporation	157	3%	360	3%	69	3%	205	10%	792	4%	295	6%	211	6%
Electronic Data Systems	141	3%	293	2%	94	4%	168	9%	696	3%	762	15%	213	6%
Unisys	100	2%	274	2%	51	2%	13	1%	438	2%			120	4%
Science Applications Int'n'l Corp.	112	2%	171	1%	40	2%	57	3%	380	2%			138	4%
Digital Equipment	76	2%	227	2%	58	2%			360	2%			67	2%
Martin Marietta Info. Systems	76	2%	186	1%	33	1%	9		304	1%	1		179	5%
Planning Research Corporation/ATI	87	2%	150	1%	38	1%	5		280	1%			132	4%
BDM International/Ford	49	1%	147	1%	9		63	3%	268	1%				
Coopers & Lybrand	63	1%	149	1%	36	1%	3		252	1%			24	1%
McDonnell Douglas Systems Integration	52	1%	163	1%	24	1%	3		242	1%	4		36	1%
Ernst & Young	60	1%	131	1%	36	1%	3		230	1%			45	1%
AGS Computers/NYNEX	39	1%	153	1%	23	1%	4		219	1%			34	1%
Boeing Computer Services	43	1%	95	1%	24	1%	50	3%	212	1%	29	1%	65	2%
Logicon	40	1%	150	1%	12				202	1%				
Control Data Corporation	29	1%	129	1%	36	1%	2		196	1%	4		78	2%
Computer Task Group	32	1%	134	1%	25	1%	1		191	1%	7		39	1%
Cap Gemini America	27	1%	133	1%	24	1%	6		190	1%			14	
KPMG (Peat Marwick)	37	1%	124	1%	10				171	1%			27	1%
Price Waterhouse	62	1%	76	1%	14	1%			152	1%			6	
Grumman Data Systems	41	1%	85	1%	14	1%	10	1%	150	1%	12		52	2%
Deloitte & Touche	39	1%	99	1%	9				147	1%			16	
Cincinnati Bell Information Services	20		62		51	2%	11	1%	144	1%	1			
NCR	37	1%	91	1%	16	1%			144	1%				
Arthur D. Little	70	1%	60		10				140	1%				
AT&T	33	1%	86	1%	17	1%	2		138	1%			14	
American Management Systems	20		82	1%	11		18	1%	131	1%	23		15	
SHL Systemhouse	26	1%	89	1%	5		11	1%	131	1%			14	

"*" = "Up and Coming" Vendors

EXHIBIT II-2: 1990 COMPETITIVE MARKET STRUCTURE - GRAND TOTAL

VENDOR	CONSULTING ($M)	CONSULTING (%)	SOFTWARE DEVELOPMENT ($M)	SOFTWARE DEVELOPMENT (%)	EDUCATION & TRAINING ($M)	EDUCATION & TRAINING (%)	SYSTEMS OPERATIONS (SERVICES) ($M)	SYSTEMS OPERATIONS (SERVICES) (%)	TOTAL PROFESSIONAL SERVICES ($M)	TOTAL PROFESSIONAL SERVICES (%)	SYSTEMS OPERATIONS (PROCESSING) ($M)	SYSTEMS OPERATIONS (PROCESSING) (%)	SYSTEMS INTEGRATION (PROF. SVC. MARKET) 1 ($M)	SYSTEMS INTEGRATION (PROF. SVC. MARKET) 1 (%)
Booz, Allen & Hamilton	55	1%	71	1%	2				128	1%			2	
TRW, Inc.	27	1%	72	1%	10		10	1%	119	1%	30	1%	2	
Analysts International	23		74	1%	16	1%			113	1%				
Hewlett-Packard	36	1%	67	1%	8				111					
Computer Horizons	12		74	1%	12		1		99				5	
SUBTOTAL	2166	45%	5247	42%	1132	44%	756	38%	9300	42%	1301	26%	2283	67%
OTHER VENDORS	2698	55%	7313	58%	1455	56%	1214	62%	12679	58%	3699	74%	1143	33%
TOTAL MARKET	4863	100%	12559	100%	2587	100%	1970	100%	21979	100%	5000	100%	3425	100%

NOTE 1 - The professional services components of systems integration are included here for informational purposes; these dollar amounts are allocated to the appropriate professional services categories.

EXHIBIT II-2A: 1990 SYSTEMS OPERATIONS MARKET

VENDOR	SYSTEMS OPERATIONS (SERVICES) ($M)	(%)	SYSTEMS OPERATIONS (PROCESSING) ($M)	(%)	TOTAL SYSTEMS OPERATIONS ($M)	(%)
Electronic Data Systems	168	8.5%	762	15.2%	930	13.3%
Computer Sciences Corporation	205	10.4%	295	5.9%	500	7.2%
Affiliated			165	3.3%	165	2.4%
Systematics	3	0.2%	160	3.2%	163	2.3%
Shared Medical Systems	5	0.3%	132	2.6%	137	2.0%
International Business Machines	58	2.9%	76	1.5%	134	1.9%
Securities Industry Automation			110	2.2%	110	1.6%
Andersen Consulting	44	2.2%	57	1.1%	101	1.4%
Boeing Computer Services	50	2.5%	29	0.6%	79	1.1%
First Financial Mgmt.			77	1.5%	77	1.1%
Fiserv			75	1.5%	75	1.1%
DST Systems			65	1.3%	65	0.9%
BDM International/Ford	63	3.2%			63	0.9%
Science Applications Int'n'l Corp.	57	2.9%			57	0.8%
HBO & Company			55	1.1%	55	0.8%
Systems & Computer Technology	24	1.2%	29	0.6%	53	0.8%
Perot Systems	7	0.4%	44	0.9%	51	0.7%
American Management Systems	18	0.9%	23	0.5%	41	0.6%
On-Line Computer Library Center			40	0.8%	40	0.6%
Policy Management Systems			40	0.8%	40	0.6%
TRW, Inc.	10	0.5%	30	0.6%	40	0.6%
Syscon Corporation	19	1.0%	20	0.4%	39	0.6%
Centel	33	1.7%			33	0.5%
SEI Corporation			33	0.7%	33	0.5%
Computer Power Group Americas			32	0.6%	32	0.5%
Mellon Bank			31	0.6%	31	0.4%
Covia			30	0.6%	30	0.4%
Litton Computer Services	1	0.1%	29	0.6%	30	0.4%
Technicon			27	0.5%	27	0.4%
Citicorp Information Resources	3	0.2%	23	0.5%	26	0.4%
Genix			26	0.5%	26	0.4%

EXHIBIT II-2A: 1990 SYSTEMS OPERATIONS MARKET

VENDOR	SYSTEMS OPERATIONS (SERVICES) ($M)	(%)	SYSTEMS OPERATIONS (PROCESSING) ($M)	(%)	TOTAL SYSTEMS OPERATIONS ($M)	(%)
Agway			25	0.5%	25	0.4%
GEIS Co	1	0.1%	22	0.4%	23	0.3%
COMARCO	22	1.1%			22	0.3%
Grumman Data Systems	10	0.5%	12	0.2%	22	0.3%
Disclosure, Inc.			21	0.4%	21	0.3%
ISI			21	0.4%	21	0.3%
Continuum Company (The)	18	0.9%			18	0.3%
Dynamics Research	1	0.1%	16	0.3%	17	0.2%
Sterling Software	16	0.8%			16	0.2%
Comp. Data Sys (US West)	14	0.7%			14	0.2%
Cycare Systems	13	0.7%			13	0.2%
Unisys	13	0.7%			13	0.2%
Cincinnati Bell Information Services	11	0.6%	1	0.0%	12	0.2%
May & Speh			11	0.2%	11	0.2%
SHL Systemhouse	11	0.6%			11	0.2%
Martin Marietta Info. Systems	9	0.5%	1	0.0%	10	0.1%
Telos Corp.	10	0.5%			10	0.1%
SUBTOTAL	916	46%	2645	53%	3561	51%
OTHER VENDORS	1054	54%	2355	47%	3409	49%
TOTAL MARKET	1970	100%	5000	100%	6970	100%

EXHIBIT II-3: TOP 10 VENDORS BY INDUSTRY BASED ON 1990 REVENUE

VENDOR	MANUFACTURING ($M)	AUTOMOTIVE ($M)	AEROSPACE ($M)	ELECTRONICS ($M)	PROCESS ($M)	CONSUMER ($M)	CHEM/PHARM ($M)	PETROLEUM ($M)	COMMUNICATIONS ($M)	COMPUTER ($M)	CONSULTANTS ($M)
TOTAL MARKET	2134	341	475	903	1522	244	189	215	862	32	30
Adia											1
AGS Computers/NYNEX	50	9		25	24				23		
American Management Systems											
Analysts International		11		29			4	4			1
Analytical Sciences Corp. (The)											
Andersen Consulting	116	14	30	42	101	12	14	14	27	1	
Arthur D. Little			8				4	4			
AT&T											
BDM International/Ford		12	12								
Bechtel Information Technology	48										
Boeing Computer Services											
Cadence				27							
Cap Gemini America									35	2	1
Cincinnati Bell Information Services									40		1
Combustion Engineering											
Compucare											
Computer Horizons						4			19		
Computer Power Group Americas											
Computer Sciences Corporation	50	10	18	18	35	4			36	4	2
Computer Task Group	48	13	10	19				8	18	2	2
Compuware											2
Comtex										1	
Continuum Company (The)											
Control Data Corporation											
Coopers & Lybrand		9			47	10	7	7			
Cycare Systems											
Deloitte & Touche					33	5	5	7			
Digital Equipment	38				22		6	8	36		1
Disclosure, Inc.											

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EXHIBIT II-3: TOP 10 VENDORS BY INDUSTRY BASED ON 1990 REVENUE

VENDOR	MANUFACTURING ($M)	AUTOMOTIVE ($M)	AEROSPACE ($M)	ELECTRONICS ($M)	PROCESS ($M)	CONSUMER ($M)	CHEM/PHARM ($M)	PETROLEUM ($M)	COMMUNICATIONS ($M)	COMPUTER ($M)	CONSULTANTS ($M)
Electronic Data Systems			13	38	43	5	5	9			
Ernst & Young							4				
Fluor	40										
Groupe Bull						4					
Grumman Data Systems											
Harris					38		5				
HBO & Company											
International Business Machines	115	19	23	40	95	9	12	21	26	1	
Keane, Inc.		13									1
KPMG (Peat Marwick)					62	7					
Litton Computer Services			9								
Lockheed											
Logica/Data Architects										2	
Logicon											
MARC, Inc.											
Martin Marietta Info. Systems											
McDonnell Douglas Systems Integration	48		16	24		8				2	
National Computer Systems											
National Education Corporation											
NCR											
Planning Research Corporation/ATI											
Policy Management Systems											
Price Waterhouse	31			27				4			
Prime/Computervision		12									
Science Applications Int'n'l Corp.											
Securities Industry Automation											
Security Pacific Corporation											
SEI Corporation											
Shared Medical Systems											
SHL Systemhouse											
Systems & Computer Technology											

EXHIBIT II-3: TOP 10 VENDORS BY INDUSTRY BASED ON 1990 REVENUE

VENDOR	MANUFACTURING ($M)	AUTOMOTIVE ($M)	AEROSPACE ($M)	ELECTRONICS ($M)	PROCESS ($M)	CONSUMER ($M)	CHEM/PHARM ($M)	PETROLEUM ($M)	COMMUNICATIONS ($M)	COMPUTER ($M)	CONSULTANTS ($M)
Tandem Computers										1	
Telos Corp.			10								
Texas Instruments											
TRW, Inc.											
Unisys									30	1	1
Wicat											

EXHIBIT II-3: TOP 10 VENDORS BY INDUSTRY BASED ON 1990 REVENUE

VENDOR	HEALTH ($M)	HIGHER ED ($M)	MEDIA ($M)	SCHOOLS S & L ($M)	GOV'T ($M)	TRANSPORT ($M)	UTILITIES ($M)	WHOLESALE ($M)	RETAIL ($M)
TOTAL MARKET	773	433	815	213	1341	256	383	591	860
Adia									
AGS Computers/NYNEX				5			6		16
American Management Systems		10		6					
Analysts International									
Analytical Sciences Corp. (The)						9			
Andersen Consulting	49		44		62	28	48	26	47
Arthur D. Little						8	7	14	
AT&T		9			34				19
BDM International/Ford									
Bechtel Information Technology									
Boeing Computer Services					36				
Cadence									
Cap Gemini America			13	8					
Cincinnati Bell Information Services		8	20						
Combustion Engineering							14		
Compucare	18								
Computer Horizons								10	
Computer Power Group Americas						6			
Computer Sciences Corporation	23			5	49	8	9	32	20
Computer Task Group				5					
Compuware									
Comtex									
Continuum Company (The)									
Control Data Corporation			14	5		8	20		
Coopers & Lybrand		9	15					10	
Cycare Systems	17								
Deloitte & Touche									
Digital Equipment		15		9			30		
Disclosure, Inc.									

EXHIBIT II-3: TOP 10 VENDORS BY INDUSTRY BASED ON 1990 REVENUE

VENDOR	HEALTH ($M)	HIGHER ED ($M)	MEDIA ($M)	SCHOOLS S & L ($M)	GOV'T ($M)	TRANSPORT ($M)	UTILITIES ($M)	WHOLESALE ($M)	RETAIL ($M)
Electronic Data Systems	20	10			49		10	19	40
Ernst & Young			19		34			16	19
Fluor									
Groupe Bull									
Grumman Data Systems					44				
Harris									
HBO & Company	22								
International Business Machines	20	13	40	7		14	27	20	24
Keane, Inc.	18								
KPMG (Peat Marwick)									
Litton Computer Services									
Lockheed						7			
Logica/Data Architects									
Logicon									
MARC, Inc.			19						
Martin Marietta Info. Systems									
McDonnell Douglas Systems Integration	27		15			12			
National Computer Systems		9							
National Education Corporation			12						
NCR								19	34
Planning Research Corporation/ATI					33		12		
Policy Management Systems									
Price Waterhouse									
Prime/Computervision									
Science Applications Int'n'l Corp.									
Securities Industry Automation									
Security Pacific Corporation									
SEI Corporation									
Shared Medical Systems	23								
SHL Systemhouse					53				17
Systems & Computer Technology		16							

EXHIBIT II-3: TOP 10 VENDORS BY INDUSTRY BASED ON 1990 REVENUE

VENDOR	CONSULTANTS ($M)	HEALTH ($M)	HIGHER ED ($M)	MEDIA ($M)	SCHOOLS ($M)	S & L ($M)	GOV'T ($M)	TRANSPORT ($M)	UTILITIES ($M)	WHOLESALE ($M)	RETAIL ($M)
Tandem Computers											
Telos Corp.											
Texas Instruments			10								
TRW, Inc.											
Unisys	1				5		63	16		11	23
Wicat					5						

EXHIBIT II-3: TOP 10 VENDORS BY INDUSTRY BASED ON 1990 REVENUE

VENDOR	FINANCE ($M)	INSURANCE ($M)	SECURITIES ($M)	FEDERAL ($M)	TOTAL TOP 10 MARKETS ($M)	NUMBER OF TOP 10 MARKETS
TOTAL MARKET	2033	1657	440	4508	21979	
Adia					1	1
AGS Computers/NYNEX					158	8
American Management Systems					16	2
Analysts International					49	5
Analytical Sciences Corp. (The)					9	1
Andersen Consulting	91	72	33		871	20
Arthur D. Little					45	6
AT&T	30		26		118	5
BDM International/Ford				208	232	3
Bechtel Information Technology					48	1
Boeing Computer Services				169	205	2
Cadence					27	1
Cap Gemini America	42	32			133	7
Cincinnati Bell Information Services					69	4
Combustion Engineering					14	1
Compucare					18	1
Computer Horizons					33	3
Computer Power Group Americas					6	1
Computer Sciences Corporation	54	42		364	783	19
Computer Task Group					125	9
Compuware					2	1
Comtex					1	1
Continuum Company (The)		58			58	1
Control Data Corporation					47	4
Coopers & Lybrand					114	8
Cycare Systems					17	1
Deloitte & Touche		23			73	5
Digital Equipment	32		10		207	11
Disclosure, Inc.			18		18	1

EXHIBIT II-3: TOP 10 VENDORS BY INDUSTRY BASED ON 1990 REVENUE

VENDOR	FINANCE ($M)	INSURANCE ($M)	SECURITIES ($M)	FEDERAL ($M)	TOTAL TOP 10 MARKETS ($M)	NUMBER OF TOP 10 MARKETS
Electronic Data Systems	60	65		247	633	15
Ernst & Young		34	7		133	7
Fluor					40	1
Groupe Bull					4	1
Grumman Data Systems					44	1
Harris					43	2
HBO & Company					22	1
International Business Machines	55	90	14	238	923	22
Keane, Inc.					32	3
KPMG (Peat Marwick)					69	2
Litton Computer Services					9	1
Lockheed					7	1
Logica/Data Architects					2	1
Logicon				202	202	1
MARC, Inc.					19	1
Martin Marietta Info. Systems				273	273	1
McDonnell Douglas Systems Integration		26			178	9
National Computer Systems					9	1
National Education Corporation			7		19	2
NCR					53	2
Planning Research Corporation/ATI				197	242	3
Policy Management Systems		70			70	1
Price Waterhouse					62	3
Prime/Computervision					12	1
Science Applications Int'n'l Corp.				335	335	1
Securities Industry Automation			25		25	1
Security Pacific Corporation			10		10	1
SEI Corporation	31				31	1
Shared Medical Systems					23	1
SHL Systemhouse					70	2
Systems & Computer Technology					16	1

EXHIBIT II-3: TOP 10 VENDORS BY INDUSTRY BASED ON 1990 REVENUE

VENDOR	FINANCE ($M)	INSURANCE ($M)	SECURITIES ($M)	FEDERAL ($M)	TOTAL TOP 10 MARKETS ($M)	NUMBER OF TOP 10 MARKETS
Tandem Computers					1	1
Telos Corp.					10	1
Texas Instruments					10	1
TRW, Inc.	64		8		72	2
Unisys	36			203	389	10
Wicat					5	1

Industry Analyses

Industry Analysis

A

Manufacturing

1. Professional Services-Related Industry Issues

The issues shared with vertical groups outside of discrete manufacturing include increasing pressure to reduce costs and/or increase productivity; pressure to speed up transaction processing, integration of networks, integration of databases and applications; shortages of high level IS personnel; increased use of electronic information; increasing attention to customer support/service and high use of customization. Manufacturing is beginning to experience an impact from the use of EDI and electronic information to represent part numbers and supply information on materials and technology.

Unique issues in manufacturing that can have an impact on professional services include the increasing level of connectivity between systems and equipment including robot devices in manufacturing establishments, increased attention to means of monitoring and controlling quality and continuing attempts to monitor customer problems and purchasing activities. Other areas receiving increased attention include the linking of the design engineers with the manufacturing engineers and the implementation of flexible manufacturing systems. Market drivers include shortened product life, rapidly changing market demands, and the interest to enter niche markets.

2. Key Applications and Exemplary Contracts

Application	Consulting	Software Develop.	Education & Training	Processing Services	Systems Integ.
MRP II and Related	X	X	X		X
Order Entry/ Tracking	X	X		X	X
Inventory Management	X	X		X	X
Accounting		X	X		X
CAD/CAE			X	X	X
Plant Maintenance	X	X	X		X
Networks	X	X	X		X
Operations	X			X	

EXEMPLARY CONTRACTS

Vendor(s)	Project	Customer	Value ($M)
Price Waterhouse	Inventory	Cyclops Industry	Prop.
Votan	Voice recognition system	Norwalk Furniture	"
CIMLINC	CIM turnkey on PC	Cincinnati Milacron	"
AT&T	Network Computing	BE&K Construction	"
Coopers & Lybrand	MRP	Kenner Parker Toys	Prop.

3. Market Size and Competitive Structure

EXHIBIT III-1: 1990 COMPETITIVE MARKET STRUCTURE - MANUFACTURING

VENDOR	CONSULTING		SOFTWARE DEVELOPMENT		EDUCATION & TRAINING		SYSTEMS OPERATIONS (SERVICES)		TOTAL PROFESSIONAL SERVICES		SYSTEMS OPERATIONS (PROCESSING)		SYSTEMS INTEGRATION (PROF. SVC. MARKET) 1	
	($M)	(%)	($M)	(%)	($M)	(%)	($M)	(%)	($M)	(%)	($M)	(%)	($M)	(%)
Andersen Consulting	26	5%	70	5%	18	6%	2	5%	116	5%	2	*	65	28%
International Business Machines	27	5%	65	5%	19	7%	4	10%	115	5%	2	1%	37	16%
Computer Sciences Corporation	11	2%	33	3%	3	1%	3	8%	50	2%	6	3%	12	5%
AGS Computers/NYNEX	6	1%	42	3%	2	1%			50	2%			10	4%
Computer Task Group	6	1%	38	3%	4	1%			48	2%	5	3%	12	5%
McDonnell Douglas Systems Integration	12	2%	32	2%	4	1%			48	2%	4	2%	4	2%
Bechtel Information Technology	6	*	34	3%	8	3%			48	2%				
Fluor	10	2%	24	2%	6	2%			40	2%				
Digital Equipment	12	2%	23	2%	3	1%			38	2%			4	2%
Price Waterhouse	15	3%	14	*	2	1%			31	1%			2	1%
Electronic Data Systems	7	1%	14	1%	5	2%	4	10%	30	1%	19	11%	9	4%
Harris	5	1%	13	1%	5	2%			23	1%			4	2%
General Instruments	0	0%	17	1%	1		2	5%	20	1%				
Arthur D. Little	10	2%	9	1%	1				20	1%				
Unisys	3	1%	15	1%	2	1%			20	1%			5	2%
Cap Gemini America	3	1%	12	1%	5	2%			20	1%			1	
Booz, Allen & Hamilton	8	2%	7	1%	2	1%			17	1%				
Allen-Bradley	5	1%	7	*	2	1%			14	1%				
AT&T	3	1%	7	1%	4	1%			14	1%				
Grumman Data Systems	3	1%	9	1%					12	1%	3	2%	4	2%
Coopers & Lybrand	4	1%	4		3	1%			11	1%			1	
TSC	3	1%	3						6					
SUBTOTAL	185	37%	492	38%	99	35%	15	38%	791	37%	41	23%	170	74%
OTHER VENDORS	314	63%	820	63%	185	65%	24	62%	1343	63%	135	77%	61	26%
TOTAL MARKET	499	100%	1312	100%	284	100%	39	100%	2134	100%	176	100%	231	100%

NOTE 1 - The professional services components of systems integration are included here for informational purposes; these dollar amounts are allocated to the appropriate professional services categories.

"*" = "Up and Coming" Vendors

B

Automotive

1. Professional Services-Related Industry Issues

The issues shared with vertical groups outside of manufacturing are similar to those in manufacturing generally and include high levels of pressure to reduce costs and/or increase productivity; pressure to speed up transaction processing, integration of networks, integration of databases and applications; shortages of high level IS personnel, increased use of electronic information, increasing attention to customer support/service and high use of customization. In addition to EDI, automotive manufacturing is beginning to experience an impact from the use of electronic information to represent part numbers and supply information on materials and technology.

Issues in this vertical market that can have an impact on professional services are similar to those in manufacturing generally and include the increasingly complex connectivity between systems and equipment including robot devices in manufacturing establishments, increased attention to means of monitoring and controlling quality and continuing attempts to monitor customer problems and purchasing activities. Other areas receiving increased attention include the linking of the design engineers with the manufacturing engineers and the implementation of flexible manufacturing systems. Market drivers include shortened product life, rapidly changing market demands, and the interest to enter niche markets and participate in manufacturing arrangements with other companies.

In the face of plateaued demand and increased competition, the automotive sector is striving to maintain planned investments. It has, so far, proved difficult for U.S.-based systems vendors to do business with foreign-owned operations.

2. Key Applications and Exemplary Contracts

Application	Consulting	Software Develop.	Education & Training	Processing Services	Systems Integ.
MRP II and Related	X	X	X		X
Order Entry/ Tracking	X	X		X	X
Inventory Management	X	X		X	X
Accounting		X			X
CAD/CAE	X	X	X		X
Plant Maintenance	X	X	X		X
Networks	X				X
Operations				X	

EXEMPLARY CONTRACTS

Vendor(s)	Project	Customer	Value ($M)
Computer Task Group	Business Management DBMS	Ford Motors	1.8E
IBM/Global Data	Order Entry System	GE/Drive Systems (Turbines)	1.0
Anatec	Engineering Financial	Ford	Prop.
BDM	CAD/CAM Consulting	Ford	Prop.

3. Market Size and Competitive Structure

See Exhibit III-2.

EXHIBIT III-2: 1990 COMPETITIVE MARKET STRUCTURE - AUTOMOTIVE

VENDOR	CONSULTING ($M)	CONSULTING (%)	SOFTWARE DEVELOPMENT ($M)	SOFTWARE DEVELOPMENT (%)	EDUCATION & TRAINING ($M)	EDUCATION & TRAINING (%)	SYSTEMS OPERATIONS (SERVICES) ($M)	SYSTEMS OPERATIONS (SERVICES) (%)	TOTAL PROFESSIONAL SERVICES ($M)	TOTAL PROFESSIONAL SERVICES (%)	SYSTEMS OPERATIONS (PROCESSING) ($M)	SYSTEMS OPERATIONS (PROCESSING) (%)	SYSTEMS INTEGRATION (PROF. SVC. MARKET) ($M)	SYSTEMS INTEGRATION (PROF. SVC. MARKET) (%)
International Business Machines	3	4%	13	6%	2	4%	1	17%	19	6%	1	3%	5	13%
Andersen Consulting	3	4%	8	4%	2	4%	1	17%	14	4%	3	10%	7	18%
Keane, Inc.	2	3%	8	4%	3	7%			13	4%			2	5%
Computer Task Group	4	5%	6	3%	3	7%			13	4%			3	*
Prime/Computervision	5	6%	4	2%	3	7%			12	4%				
BDM International/Ford	2	3%	8	4%	1	2%	1	*	12	4%				
Analysts International	3	4%	7	3%	1	2%			11	3%				
Computer Sciences Corporation	1	1%	8	4%	1	2%			10	3%	2	5%	2	5%
Coopers & Lybrand	3	4%	5	2%			1	17%	9	3%			2	5%
AGS Computers/NYNEX	2	3%	4	2%	3	7%			9	3%			1	3%
Electronic Data Systems	1	1%	5	2%	1	2%			7	2%	6	19%	2	5%
Price Waterhouse	4	5%	2	1%					6	2%				
McDonnell Douglas Systems Integration	1	1%	4	2%					5	1%				
Booz, Allen & Hamilton	2	*	3	1%					5	1%				
Digital Equipment			4	2%	1	2%			5	1%				
Intermetrics	1	1%	2	*	1	2%			4	1%				
Deere Technical Services	2	3%	2	1%					4	1%				
TSC	1	1%	1						2	1%				
Triad			2	1%					2	1%				
SUBTOTAL	40	50%	96	46%	22	49%	4	67%	162	48%	12	37%	24	63%
OTHER VENDORS	40	50%	114	54%	23	51%	2	33%	179	52%	20	63%	14	37%
TOTAL MARKET	80	100%	210	100%	45	100%	6	100%	341	100%	31	100%	38	100%

NOTE 1 - The professional services components of systems integration are included here for informational purposes; these dollar amounts are allocated to the appropriate professional services categories.

"*" = "Up and Coming" Vendors

C

Aerospace

1. Professional Services-Related Industry Issues

The issues shared with vertical groups outside of manufacturing include increasing pressure to reduce costs and/or increase productivity, particularly in view of reductions in DoD expenditures; pressure to speed up transaction processing, integration of networks, integration of databases and applications; shortages of high level IS personnel; increased use of electronic information; increasing attention to customer support/service and high use of customization. In addition to EDI, aeronautical manufacturing is beginning to experience an impact from the use of electronic information to represent part numbers that can be communicated directly to machines (e.g., Product Description - P-DES).

Unique issues in aerospace that can have an impact on professional services include the increasingly complex connectivity between systems and equipment including robot devices, increased attention to means of monitoring and controlling quality. Other areas receiving increased attention include the linking of the design engineers with the manufacturing engineers and the implementation of flexible manufacturing systems.

Aerospace firms are under increasing pressure from declining government orders and a weak air transport market (even though backlogs remain high). Some aerospace firms may reduce their participation in some areas of the markets.

2. Key Applications and Exemplary Contracts

Application	Consulting	Software Develop.	Education & Training	Processing Services	Systems Integ.
MRP II and Related	X	X	X		X
Order Entry/ Tracking	X	X		X	X
Inventory Management	X	X		X	X
Accounting		X			X
CAD/CAE	X	X	X		X
Plant Maintenance	X	X	X		X
Networks	X				X
Operations				X	

EXEMPLARY CONTRACTS

Vendor(s)	Project	Customer	Value ($M)
Andersen Consulting	CALFAB	Lockheed International	3.0
Andersen Consulting	Advanced Factory Support	Boeing	2.7
DEC	CIM System	Boeing (Seattle Pt)	50.0
Litton Industry	Image Processing	Boeing	25.0

3. Market Size and Competitive Structure

See Exhibit III-3.

EXHIBIT III-3: 1990 COMPETITIVE MARKET STRUCTURE - AEROSPACE

VENDOR	CONSULTING ($M)	CONSULTING (%)	SOFTWARE DEVELOPMENT ($M)	SOFTWARE DEVELOPMENT (%)	EDUCATION & TRAINING ($M)	EDUCATION & TRAINING (%)	SYSTEMS OPERATIONS (SERVICES) ($M)	SYSTEMS OPERATIONS (SERVICES) (%)	TOTAL PROFESSIONAL SERVICES ($M)	TOTAL PROFESSIONAL SERVICES (%)	SYSTEMS OPERATIONS (PROCESSING) ($M)	SYSTEMS OPERATIONS (PROCESSING) (%)	SYSTEMS INTEGRATION (PROF. SVC. MARKET) ($M)	SYSTEMS INTEGRATION (PROF. SVC. MARKET) (%) 1
Andersen Consulting	7	6%	18	6%	4	6%	1	11%	30	6%	1	2%	12	23%
International Business Machines	6	5%	12	4%	3	5%	2	22%	23	5%	1	2%	4	8%
Computer Sciences Corporation	2	2%	11	4%	4	6%	1	11%	18	4%	1	2%	4	8%
McDonnell Douglas Systems Integration	3	3%	11	4%	2	3%			16	3%			2	4%
Electronic Data Systems	4	4%	7	2%	1	2%	1	11%	13	3%	16	39%	3	6%
BDM International/Ford	3	3%	9	3%					12	3%			0	0%
Computer Task Group	2	2%	7	2%	1	2%			10	2%			2	4%
Telos Corp.	2	2%	8	3%					10	2%			0	0%
Litton Computer Services	1	1%	8	3%					9	2%			0	0%
Arthur D. Little	0	0%	2	1%	2	3%			8	2%			0	0%
Martin Marietta Info. Systems	2	2%	4	1%	2	3%			8	2%			0	0%
AGS Computers/NYNEX	0	0%	6	2%	1	2%			7	1%			1	2%
Booz, Allen & Hamilton			4	1%	1	2%			7	1%			1	*
Intermetrics	2	2%	4	1%	1	2%			7	1%			0	0%
Prime/Computervision	0	0%	3	1%	4	*			7	1%			0	0%
Digital Equipment	2	2%	4	*					6	1%			0	0%
Metier Management	2	2%	4	1%					6	1%			0	0%
Systems Applications Int'n'l Corp.	2	2%	4	1%					6	1%			0	0%
Coopers & Lybrand	2	2%	2	1%					4	1%			0	0%
Ernst & Young	2	2%	2	1%					4	1%			0	0%
TSC	2	2%	1						3	1%			0	0%
Boeing Computer Services													0	0%
SUBTOTAL	46	41%	131	45%	26	41%	5	56%	214	45%	19	46%	29	55%
OTHER VENDORS	65	59%	161	55%	37	59%	4	44%	261	55%	22	54%	24	45%
TOTAL MARKET	111	100%	292	100%	63	100%	9	100%	475	100%	41	100%	53	100%

NOTE 1 - The professional services components of systems integration are included here for informational purposes; these dollar amounts are allocated to the appropriate professional services categories.

"*" = "Up and Coming" Vendors

D

Electrical Machinery

1. Professional Services-Related Industry Issues

The issues shared with other vertical groups include increasing pressure to reduce costs and/or increase productivity; pressures to speed up transaction processing, integration of networks, integration of databases and applications, shortages of high level IS personnel, increased use of electronic information, increasing attention to customer support/service and high use of customization. In addition to EDI, electrical discrete manufacturing is beginning to experience an impact from the use of electronic information to supply data on materials and technology.

Issues in this manufacturing segment that can have an impact on professional services are similar to those in manufacturing generally and include the increasingly complex connectivity between systems and equipment including robot devices in manufacturing establishments, increased attention to means of monitoring and controlling quality and continuing attempts to monitor customer problems and purchasing activities. Other areas receiving increased attention include the linking of the design engineers with the manufacturing engineers and the implementation of flexible manufacturing systems. Market drivers include shortened product life, rapidly changing market demands, and the interest to enter niche markets.

2. Key Applications and Exemplary Contracts

Application	Consulting	Software Develop.	Education & Training	Processing Services	Systems Integ.
MRP II and Related	X	X	X		X
Order Entry/ Tracking	X	X		X	X
Inventory Management	X	X		X	X
Accounting		X			X
CAD/CAE	X	X	X		X
Plant Maintenance	X	X	X		X
Networks	X				X
Operations				X	

EXEMPLARY CONTRACTS

Vendor(s)	Project	Customer	Value ($M)
Analysts International	Design and Development	Motorola	Prop.
EDS	Electronics Manufacturing System	Signetics	100.0
Analysts International	Sales Quota Compensation System	Eastman Kodak	Prop.
HP/AT&T/Card	Order Entry System	Millipore	2.1
Unitronix	Integrated manufacturing, distribution and financial system	Leica	1.9
DMR	Integrated Graphic and Text Retrieval	Northern Telecom (Manufacturing)	Prop.

3. Market Size and Competitive Structure

See Exhibit III-4.

EXHIBIT III-4: 1990 COMPETITIVE MARKET STRUCTURE - ELECTRICAL MACHINERY

VENDOR	CONSULTING ($M)	CONSULTING (%)	SOFTWARE DEVELOPMENT ($M)	SOFTWARE DEVELOPMENT (%)	EDUCATION & TRAINING ($M)	EDUCATION & TRAINING (%)	SYSTEMS OPERATIONS (SERVICES) ($M)	SYSTEMS OPERATIONS (SERVICES) (%)	TOTAL PROFESSIONAL SERVICES ($M)	TOTAL PROFESSIONAL SERVICES (%)	SYSTEMS OPERATIONS (PROCESSING) ($M)	SYSTEMS OPERATIONS (PROCESSING) (%)	SYSTEMS INTEGRATION (PROF. SVC. MARKET) 1 ($M)	SYSTEMS INTEGRATION (PROF. SVC. MARKET) 1 (%)
Andersen Consulting	12	6%	25	5%	3	3%	2	12%	42	5%	1	1%	23	23%
International Business Machines	10	5%	21	4%	6	5%	3	18%	40	4%	2	3%	11	11%
Electronic Data Systems	9	4%	22	4%	5	4%	2	12%	38	4%	32	41%	12	12%
Analysts International	3	1%	19	3%	7	6%			29	3%				*
Cadence	7	3%	17	3%	3	3%			27	3%				
Price Waterhouse	12	*	10	2%	5	4%			27	3%				
AGS Computers/NYNEX	3	1%	21	4%	1	1%			25	3%			2	2%
McDonnell Douglas Systems Integration	4	2%	16	3%	3	3%	1	6%	24	3%			4	4%
Computer Task Group	2	1%	11	2%	6	5%			19	2%				
Computer Sciences Corporation	3	1%	10	2%	4	3%			18	2%			4	4%
Prime/Computervision	4	2%	12	2%	1	1%	0	0%	17	2%	0	0%	0	0%
Computer Horizons	1		14	3%	1	*			16	2%				
NCR	4	2%	10	2%					14	2%				
DMR	3	1%	8	1%	2	2%			13	1%				
Ernst & Young	4	2%	5	1%	4	3%			13	1%				
Hewlett-Packard	4	2%	7	1%	2	2%		*	13	1%				
Coopers & Lybrand	3	1%	6	1%	3	3%			12	1%				
Booz, Allen & Hamilton	3	1%	6	1%	0	0%			9	1%			0	0%
Digital Equipment	2	1%	6	*					9	1%				
Allen-Bradley	2	1%	5	1%					7	1%				
Metier Management	2	1%	5	1%					7	1%				
Keane, Inc.	1		5	1%					6	1%				
SUBTOTAL	98	46%	261	47%	56	47%	8	47%	425	47%	35	45%	56	55%
OTHER VENDORS	113	54%	294	53%	64	53%	9	53%	478	53%	43	55%	46	45%
TOTAL MARKET	211	100%	555	100%	120	100%	17	100%	903	100%	78	100%	102	100%

NOTE 1 - The professional services components of systems integration are included here for informational purposes; these dollar amounts are allocated to the appropriate professional services categories.

"*" = "Up and Coming" Vendors

E

Process

1. Professional Services-Related Industry Issues

Issues that are shared with other verticals include the generation of more information for the purpose of analyzing performance, integrating applications and data bases, high levels of pressure to reduce costs, dealing with mergers and acquisitions and shortages of high level IS personnel.

Unique issues in process manufacturing include activities to optimize plant performance through space, work flow and maintenance planning and moves to relocate, decentralize or recentralize operations to take advantage of reduced costs or other factors at smaller or different geographical locations.

2. Key Applications and Exemplary Contracts

Application	Consulting	Software Develop.	Education & Training	Processing Services	Systems Integ.
Process Control	X	X	X	X	X
Order Entry	X	X			X
Customer Service	X	X		X	
Maintenance Scheduling	X	X			
Laboratory Data - Collection/ Analysis	X	X	X		X

EXEMPLARY CONTRACTS

Vendor(s)	Project	Customer	Value ($M)
Perot	CIM for textile plant	Springs Industry	$26.0
EDS	Outsourcing	Westmoreland	Prop.
DEC	CIM, Systems Control	Firestone	0.8
Syscon	Automated Storage	Goodyear	1.0
Computer Task Group	Data Center Consolidation	U.S. Steel	25.0
CSC	Integrated Manufacturing Info Systems	Weirton Steel	5.0
Coopers & Lybrand	Manufacturing Info Systems	Scott Paper	Prop.
SHL	Data Center Upgrade	Genstar Stone	2.7

3. Market Size and Competitive Structure

See Exhibit III-5.

1. Professional Services-Related Industry Issues

EXHIBIT III-5: 1990 COMPETITIVE MARKET STRUCTURE - PROCESS

VENDOR	CONSULTING ($M)	CONSULTING (%)	SOFTWARE DEVELOPMENT ($M)	SOFTWARE DEVELOPMENT (%)	EDUCATION & TRAINING ($M)	EDUCATION & TRAINING (%)	SYSTEMS OPERATIONS (SERVICES) ($M)	SYSTEMS OPERATIONS (SERVICES) (%)	TOTAL PROFESSIONAL SERVICES ($M)	TOTAL PROFESSIONAL SERVICES (%)	SYSTEMS OPERATIONS (PROCESSING) ($M)	SYSTEMS OPERATIONS (PROCESSING) (%)	SYSTEMS INTEGRATION (PROF. SVC. MARKET) 1 ($M)	SYSTEMS INTEGRATION (PROF. SVC. MARKET) 1 (%)
Andersen Consulting	19	7%	52	7%	15	9%	3	6%	89	8%	5	2%	9	21%
International Business Machines	18	7%	53	8%	14	9%	2	5%	87	7%	3	1%	5	12%
KPMG (Peat Marwick)	8	3%	41	6%	2	1%			51	4%			6	14%
Coopers & Lybrand	8	3%	26	4%	4	2%	1	*	39	3%			1	2%
Electronic Data Systems	14	5%	17	2%	5	3%	2	5%	38	3%	63	26%	3	7%
Harris	6	2%	22	3%	6	4%			34	3%				
Computer Sciences Corporation	4	2%	12	2%	1		10	26%	27	2%	51	21%	1	*
Deloitte & Touche	4	2%	21	3%	2	1%			27	2%			1	2%
AGS Computers/NYNEX	5	2%	10	1%	4	2%			19	2%				
Digital Equipment	4	2%	9	1%	3	2%			16	1%			2	5%
National Education Corporation					15	9%			15	1%				
Prime/Computervision	6	2%	10	1%	2	1%			18	2%				
Bechtel Information Technology	2	1%	16	2%					18	2%				
Analysts International	4	2%	10	*	2	1%			16	1%				
Hewlett-Packard	6	2%	10	1%					16	1%				
McDonnell Douglas Systems Integration	3	1%	8	1%	1				12	1%			1	2%
Computer Horizons	2	1%	3	0%	1	1%			6	1%				
Booz, Allen & Hamilton	3	*	3	0%					6	1%				
Planning Research Corporation/ATI	3	1%	6	1%					9	1%				
Computer Task Group	2	1%	4	1%	1	*			7	1%				
ASK Computer Systems	2	1%	5	1%	2	1%			9	1%				
Perot Systems	2	1%	5	1%	1				8	1%	2	*		
American Software	2	1%	4		1				7					
TSC	3	*	3						6					
SUBTOTAL	130	49%	350	50%	82	51%	18	45%	580	50%	124	50%	29	67%
OTHER VENDORS	134	51%	355	50%	80	49%	22	55%	590	50%	123	50%	14	33%
TOTAL MARKET	264	100%	705	100%	162	100%	39	100%	1169	100%	247	100%	43	100%

NOTE 1 - The professional services components of systems integration are included here for informational purposes; these dollar amounts are allocated to the appropriate professional services categories.

"*" = "Up and Coming" Vendors

F

Consumer Goods

Issues that are shared with other verticals include the generation of more information for the purpose of analyzing performance, integrating applications and data bases, high levels of pressure to reduce costs, dealing with mergers and acquisitions and shortages of high level IS personnel.

Unique issues in consumer goods manufacturing include activities to optimize plant performance through space, work flow and maintenance planning and moves to relocate, decentralize or recentralize operations to take advantage of reduced costs or other factors at smaller or different geographical locations as well as increased emphasis of marketing information and systems.

2. Key Applications and Exemplary Contracts

Application	Consulting	Software Develop.	Education & Training	Processing Services	Systems Integ.
Process Control	X	X	X	X	X
Order Entry	X	X			X
Customer Service	X	X		X	
Maintenance Scheduling	X	X			
Laboratory Data - Collection/ Analysis	X	X	X		X

EXEMPLARY CONTRACTS

Vendor(s)	Project	Customer	Value ($M)
HP/A-B/Rust	Distribution System	General Foods	1.7
Codex/McDD	Order Entry	Helene Curtis, Inc.	8.0
EDS	Upgrade of IS	Del Monte	1.5
Andersen Consulting	Systems Operations	Greyhound Corp. (Food Manufacturing)	5.7E
SHL Systemhouse	Order Processing	Quaker Oats	Prop.

3. Market Size and Competitive Structure

See Exhibit III-6.

EXHIBIT III-6: 1990 COMPETITIVE MARKET STRUCTURE - CONSUMER

VENDOR	CONSULTING ($M)	CONSULTING (%)	SOFTWARE DEVELOPMENT ($M)	SOFTWARE DEVELOPMENT (%)	EDUCATION & TRAINING ($M)	EDUCATION & TRAINING (%)	SYSTEMS OPERATIONS (SERVICES) ($M)	SYSTEMS OPERATIONS (SERVICES) (%)	TOTAL PROFESSIONAL SERVICES ($M)	TOTAL PROFESSIONAL SERVICES (%)	SYSTEMS OPERATIONS (PROCESSING) ($M)	SYSTEMS OPERATIONS (PROCESSING) (%)	SYSTEMS INTEGRATION (PROF. SVC. MARKET) ($M)	SYSTEMS INTEGRATION (PROF. SVC. MARKET) (%)
Andersen Consulting	3	5%	6	4%	2	5%	1	11%	12	4%	1	2%	4	40%
Coopers & Lybrand	1	2%	9	*					10	4%				
International Business Machines	3	5%	4	2%	1	3%	1	11%	9	3%	1	2%	1	10%
McDonnell Douglas Systems Integration	1	2%	5	3%	2	5%			8	3%			1	10%
KPMG (Peat Marwick)	1	2%	5	3%	1	3%			7	3%				
Electronic Data Systems	2	3%	2	1%	1	3%			5	2%	1	2%	1	10%
Deloitte & Touche	1	2%	4	2%					5	2%		*		
Groupe Bull	1	2%	2	1%	1	3%			4	1%				
Computer Sciences Corporation	1	2%	1	1%	1	3%	1	11%	4	1%				
Computer Horizons	1	2%	3	2%					4	1%				
Harris	1	2%	2	1%	1	3%			4	1%				
Digital Equipment	1	2%	2	1%	1	3%			4	1%				
Price Waterhouse	1	2%	2	1%	1	3%			4	1%				
Hewlett-Packard			4	2%					4	1%				
Ernst & Young	1	2%	1	1%	1	3%			3	1%				
McKinsey	1	*	2	1%					3	1%				
Computer Task Group	1	2%	2	1%					3	1%				
Keane, Inc.			2	1%		*			2	1%				
SHL Systemhouse														*
SUBTOTAL	21	33%	58	34%	13	33%	3	33%	95	34%	3	5%	7	70%
OTHER VENDORS	42	67%	111	66%	26	67%	6	67%	185	66%	56	95%	3	30%
TOTAL MARKET	63	100%	169	100%	39	100%	9	100%	280	100%	59	100%	10	100%

NOTE 1 - The professional services components of systems integration are included here for informational purposes; these dollar amounts are allocated to the appropriate professional services categories.

"*" = "Up and Coming" Vendors

G

Chemicals/ Pharmaceutical

1. Professional Services-Related Industry Issues

Issues that are shared with other verticals include the generation of more information for the purpose of analyzing performance, integrating applications and data bases, high levels of pressure to reduce costs, dealing with mergers and acquisitions, and shortages of high level IS personnel.

Unique issues in chemical/pharmaceutical process manufacturing include activities to optimize plant performance through space, work flow and maintenance planning and moves to relocate, decentralize or recentralize operations to take advantage of reduced costs or other factors at smaller or different geographical locations as well as increased emphasis of marketing information and systems.

2. Key Applications and Exemplary Contracts

Application	Consulting	Software Develop.	Education & Training	Processing Services	Systems Integ.
Process Control	X	X	X	X	X
Order Entry	X	X			X
Customer Service	X	X		X	
Maintenance Scheduling	X	X			
Laboratory Data - Collection/ Analysis	X	X	X		X

EXEMPLARY CONTRACTS

Vendor(s)	Project	Customer	Value ($M)
Andersen Consulting	INFO 90	Ashland Chemical	5.5
IBM/McDD/MSA	Order Entry	Kendall McGraw	5.4

3. Market Size and Competitive Structure

See Exhibit III-7.

EXHIBIT III-7: 1990 COMPETITIVE MARKET STRUCTURE - CHEMICAL/PHARMACEUTICAL

VENDOR	CONSULTING ($M)	CONSULTING (%)	SOFTWARE DEVELOPMENT ($M)	SOFTWARE DEVELOPMENT (%)	EDUCATION & TRAINING ($M)	EDUCATION & TRAINING (%)	SYSTEMS OPERATIONS (SERVICES) ($M)	SYSTEMS OPERATIONS (SERVICES) (%)	TOTAL PROFESSIONAL SERVICES ($M)	TOTAL PROFESSIONAL SERVICES (%)	SYSTEMS OPERATIONS (PROCESSING) ($M)	SYSTEMS OPERATIONS (PROCESSING) (%)	SYSTEMS INTEGRATION (PROF. SVC. MARKET) ($M)	SYSTEMS INTEGRATION (PROF. SVC. MARKET) (%)
Andersen Consulting	3	6%	7	5%	3	9%	1	13%	14	6%	1	2%	2	25%
International Business Machines	2	4%	6	4%	3	9%	1	13%	12	5%	1	2%	1	13%
Coopers & Lybrand	1	2%	5	4%	1	3%			7	3%				
Digital Equipment	2	4%	3	2%	1	3%			6	3%				
Deloitte & Touche	2	4%	3	2%					5	2%				*
Electronic Data Systems	1	2%	2	1%	1	3%	1	13%	5	2%	18	36%	1	13%
Harris	1	2%	4	3%					5	2%				
Ernst & Young	1	2%	2	1%	1	3%			4	2%				
Arthur D. Little	2	4%	2	1%					4	2%				
Analysts International	1	2%	3	*					4	2%				
NCR			4	3%					4	2%				
Price Waterhouse	1	2%	2	1%					3	1%				
KPMG (Peat Marwick)	1	2%	2	1%					3	1%				
Prime/Computervision	1	2%	1	1%	1	3%			3	1%				
Computer Task Group	1	2%	1	1%	1	3%			3	1%				
TSC	1	*	1	1%					2	1%				
Booz, Allen & Hamilton	1	2%	1	1%					2	1%				
ASK Computer Systems			2	1%		*			2	1%				
Computer Sciences Corporation			1	1%	1	3%			2	1%				
Keane, Inc.			2	1%					2	1%				
Computer Associates Inc.			1	1%					1	0%				
McDonnell Douglas Systems Integration														
SUBTOTAL	22	42%	55	39%	13	41%	3	38%	93	40%	20	40%	4	50%
OTHER VENDORS	30	58%	85	61%	19	59%	5	63%	139	60%	30	60%	4	50%
TOTAL MARKET	52	100%	140	100%	32	100%	8	100%	232	100%	50	100%	8	100%

NOTE 1 - The professional services components of systems integration are included here for informational purposes; these dollar amounts are allocated to the appropriate professional services categories.

"*" = "Up and Coming" Vendors

H

Petroleum

1. Professional Services-Related Industry Issues

Issues that are shared with other verticals include increased emphasis on the generation of information to analyze performance, integrating applications and data bases, high levels of pressure to reduce costs, dealing with mergers and acquisitions and shortages of high level IS personnel.

Unique issues in petroleum process manufacturing include activities to optimize plant performance through space, work flow and maintenance planning and moves to relocate operations to take advantage of reduced costs or other factors at systems to provide more information and services to customers.

Petroleum exploration requires the collection and analysis of large amounts of complex data which has promoted the use of new approaches to data reduction including the use of parallel computing architecture. Middle East events could result in companies having more investment resources available.

2. Key Applications and Exemplary Contracts

Application	Consulting	Software Develop.	Education & Training	Processing Services	Systems Integ.
Process Control	X	X	X	X	X
Order Entry	X	X			X
Customer Service	X	X		X	
Maintenance Scheduling	X	X			
Laboratory Data - Collection/ Analysis	X	X	X		X

EXEMPLARY CONTRACTS

Vendor(s)	Project	Customer	Value ($M)
Contel Applied Systems	VSAT Network (110 in 10 states, 2 Masters)	Williams Corp.	4.5
D&T	Network	Sonoco Products	1.6
CTG (SSS)	Plant Process Control	Cargill	2.0
IBM	Integration of Wang Systems with IBM	Mobil Oil	250.0
Andersen Consulting	Outsourcing	Sun Oil	175.0

3. Market Size and Competitive Structure

See Exhibit III-8.

EXHIBIT III-8: 1990 COMPETITIVE MARKET STRUCTURE - PETROLEUM

VENDOR	CONSULTING ($M)	CONSULTING (%)	SOFTWARE DEVELOPMENT ($M)	SOFTWARE DEVELOPMENT (%)	EDUCATION & TRAINING ($M)	EDUCATION & TRAINING (%)	SYSTEMS OPERATIONS (SERVICES) ($M)	SYSTEMS OPERATIONS (SERVICES) (%)	TOTAL PROFESSIONAL SERVICES ($M)	TOTAL PROFESSIONAL SERVICES (%)	SYSTEMS OPERATIONS (PROCESSING) ($M)	SYSTEMS OPERATIONS (PROCESSING) (%)	SYSTEMS INTEGRATION (PROF. SVC. MARKET) 1 ($M)	SYSTEMS INTEGRATION (PROF. SVC. MARKET) 1 (%)
International Business Machines	4	4%	21	7%	3	5%	1	*	29	6%	1	1%	7	13%
Andersen Consulting	6	5%	15	5%	4	6%	1	6%	26	5%	1	*	12	21%
Electronic Data Systems	2	2%	7	2%	2	3%	3	15%	14	3%	30	32%	4	7%
Digital Equipment	5	4%	7	2%	2	3%			14	3%			2	4%
Computer Task Group	2	2%	7	*					10	2%			2	*
Deloitte & Touche	4	*	9	3%					13	3%			1	2%
Coopers & Lybrand	4	4%	10	3%					16	3%			1	2%
Arthur D. Little	3	3%	2	1%					5	1%				
Price Waterhouse	1	1%	2	1%	1	2%			4	1%				
Analysts International	1	1%	3	1%					4	1%				
Harris	2	2%	5	2%	1	2%			4	1%				
"*" Booz, Allen & Hamilton	3	3%	4	1%					7	1%				
Ernst & Young	1	1%	2	1%					3	1%			1	2%
KPMG (Peat Marwick)	3	3%	10	3%					13	3%				
ASK Computer Systems			1	0%	1	2%			2	0%				
Babcock & Wilcox			1	0%					1					
Unisys					1	2%			1					
Compuware			1	0%					1					
Hewlett-Packard														
SUBTOTAL	41	36%	107	36%	15	23%	5	26%	167	34%	32	34%	30	54%
OTHER VENDORS	72	64%	189	64%	50	77%	13	74%	324	66%	63	66%	26	46%
TOTAL MARKET	113	100%	296	100%	65	100%	17	100%	490	100%	95	100%	56	100%

NOTE 1 - The professional services components of systems integration are included here for informational purposes; these dollar amounts are allocated to the appropriate professional services categories.

"*" = "Up and Coming" Vendors

I

Communications

1. Professional Services-Related Industry Issues

Issues that are shared with other verticals include shortages of IS personnel including those with high levels of skills, pressures for cost reduction and/or increased productivity, dealing with mergers and acquisitions, regulatory factors, high levels of reporting to government organizations, and increased attention to customer service/support.

Unique issues in communications that can have an impact on professional services include the interfaces and boundaries between communication company services and the pricing of services. Others include large scale DBMS (directory assistance), voice response, and image processing. Some assistance is required in core transmission and switching parts of the business.

2. Key Applications and Exemplary Contracts

Application	Consulting	Software Develop.	Education & Training	Processing Services	Systems Integ.
Billing	X	X			
Customer Service	X	X	X		
Card-based Services	X	X			
Accounting/ Financials	X	X			
Planning	X	X	X		
Maintenance Scheduling		X			

EXEMPLARY CONTRACTS

Vendor(s)	Project	Customer	Value ($M)
U.S. West	ISDN Implementation	3M Net	30.0E
IBM	Data Center Conversion	GE/NBC	Prop.
EDS	Telephone Billing System	Contel	5.0
Hewlett-Packard	Workstation Implementation	Northern Telecom	12.0
Nesbit Systems Inc.	Integrate Systems and Communications	CBS	21.0

3. Market Size and Competitive Structure

See Exhibit III-9.

EXHIBIT III-9: 1990 COMPETITIVE MARKET STRUCTURE - COMMUNICATIONS

VENDOR	CONSULTING ($M)	CONSULTING (%)	SOFTWARE DEVELOPMENT ($M)	SOFTWARE DEVELOPMENT (%)	EDUCATION & TRAINING ($M)	EDUCATION & TRAINING (%)	SYSTEMS OPERATIONS (SERVICES) ($M)	SYSTEMS OPERATIONS (SERVICES) (%)	TOTAL PROFESSIONAL SERVICES ($M)	TOTAL PROFESSIONAL SERVICES (%)	SYSTEMS OPERATIONS (PROCESSING) ($M)	SYSTEMS OPERATIONS (PROCESSING) (%)	SYSTEMS INTEGRATION (PROF. SVC. MARKET) 1 ($M)	SYSTEMS INTEGRATION (PROF. SVC. MARKET) 1 (%)
Cincinnati Bell Information Services	8	4%	20	4%	8	7%	4	25%	40	5%	1	3%		
Computer Sciences Corporation	10	5%	24	5%	2	2%			36	4%			8	9%
Digital Equipment	10	5%	23	4%	3	3%			36	4%			4	4%
Cap Gemini America	8	4%	23	4%	4	4%			35	4%			2	2%
Unisys	8	4%	20	4%	2	2%			30	3%			6	7%
Andersen Consulting	10	5%	12	2%	4	4%	1	6%	27	3%	1	3%	14	16%
International Business Machines	6	3%	14	3%	6	5%			26	3%			5	6%
AGS Computers/NYNEX	7	3%	12	2%	4	4%			23	3%			3	3%
Computer Horizons	1		16	3%	2	2%			19	2%			1	1%
Computer Task Group	2	1%	15	3%	1	1%			18	2%			5	6%
American Management Systems	4	2%	10	2%	2	2%	1	6%	17	2%	2	6%	2	2%
GTE	5	2%	9	2%	2	2%	1	6%	17	2%	0	0%	0	0%
Electronic Data Systems	2	1%	10	*	2	2%			14	2%			4	*
Ernst & Young	4	2%	7	1%	1	1%			12	1%			2	2%
Computer Power Group Americas	1		11	2%					12	1%				
Coopers & Lybrand	4	2%	6	1%	2	2%			12	1%		*		
Hewlett-Packard	4	2%	6	1%	1	1%			11	1%				
Analysts International	1		6	1%	1	1%			8	1%				
Keane, Inc.	2	1%	6	1%					8	1%			1	1%
National Education Corporation					8	7%			8	1%				
McDonnell Douglas Systems Integration	2	1%	5	1%					7	1%			3	3%
Comp. Data Sys (US West)	1	*	5	1%					6	1%				
Logica/Data Architects			1		1	*			2					
SUBTOTAL	100	50%	261	49%	56	49%	7	44%	424	49%	4	11%	60	67%
OTHER VENDORS	101	50%	270	51%	58	51%	9	56%	438	51%	32	89%	29	33%
TOTAL MARKET	201	100%	531	100%	114	100%	16	100%	862	100%	36	100%	89	100%

NOTE 1 - The professional services components of systems integration are included here for informational purposes; these dollar amounts are allocated to the appropriate professional services categories.

"*" = "Up and Coming" Vendors

J

Computer Services

1. Professional Services-Related Industry Issues

Issues that are shared with other verticals include needs to speed up transaction processing and response time (professional service firms are aiding software and hardware firms to achieve this goal), shortages of higher level IS people, pressures for cost reduction and/or increased productivity, dealing with mergers and acquisitions, increased attention to customer service/support, and continuing needs for customization.

Unique issues in computer services that can have an impact on professional services include the need to constantly provide added value services to keep clients from migrating to alternate solutions and the requirement to upgrade solutions to perform with new operating system other system software releases and new hardware technology.

2. Key Applications and Exemplary Contracts

Application	Consulting	Software Develop.	Education & Training	Processing Services	Systems Integ.
Employee Training	X		X		
Application Development	X	X			X
Customer Service	X	X			X
Marketing	X	X			X

EXEMPLARY CONTRACTS

Vendor(s)	Project	Customer	Value ($M)
Wicat	Development of CBT Tools	Delex Systems	0.9
Hughes Network Systems	VSAT Network	GE Information Services	10.0
Data General	Network Maintenance	Epic Systems	10.0
Comtex	PC/Electronic Mail	ADP	Prop.
Prop.	Communication System	Ashton Tate	2.3
Prop.	Internal System	Legent	7.0

3. Market Size and Competitive Structure

See Exhibit III-10.

EXHIBIT III-10: 1990 COMPETITIVE MARKET STRUCTURE - COMPUTER SERVICES

VENDOR	CONSULTING ($M)	CONSULTING (%)	SOFTWARE DEVELOPMENT ($M)	SOFTWARE DEVELOPMENT (%)	EDUCATION & TRAINING ($M)	EDUCATION & TRAINING (%)	SYSTEMS OPERATIONS (SERVICES) ($M)	SYSTEMS OPERATIONS (SERVICES) (%)	TOTAL PROFESSIONAL SERVICES ($M)	TOTAL PROFESSIONAL SERVICES (%)	SYSTEMS OPERATIONS (PROCESSING) ($M)	SYSTEMS OPERATIONS (PROCESSING) (%)	SYSTEMS INTEGRATION (PROF. SVC. MARKET) ($M)	SYSTEMS INTEGRATION (PROF. SVC. MARKET) (%)
Computer Sciences Corporation	1	14%	1	5%	1	25%	1	50%	4	13%			2	40%
Computer Task Group			2	11%		0%			2	8%				
Cap Gemini America			2	11%					2	6%				
McDonnell Douglas Systems Integration			2	11%					2	6%				
Logica/Data Architects			1	5%	1	15%			2	5%				
International Business Machines	1	14%							1	3%				
Tandem Computers	1	14%							1	3%				
Andersen Consulting			1	5%					1	3%			1	*
Unisys	1	14%							1	3%				
Comtex			1	5%					1	3%				
Data General	1	14%							1	3%				
Digital Equipment														
Adia														
GTE														
Oracle Complex Systems		*												
McGraw-Hill, Inc.														
Wicat						*								
American Management Systems														
SUBTOTAL	5	71%	10	53%	2	40%	1	50%	18	56%	0	0%	3	50%
OTHER VENDORS	2	29%	9	47%	2	60%	1	50%	14	44%	3	100%	3	50%
TOTAL MARKET	7	100%	19	100%	4	100%	2	100%	32	100%	3	100%	5	100%

NOTE 1 - The professional services components of systems integration are included here for informational purposes; these dollar amounts are allocated to the appropriate professional services categories.

"*" = "Up and Coming" Vendors

K

Consultants

1. Professional Services-Related Industry Issues

Issues that are shared with other verticals include shortages of higher level IS people, pressures for cost reduction and/or increased productivity, dealing with mergers and acquisitions, and increased attention to customer service/support.

Unique issues in consulting that can have an impact on professional services include the continuing need to improve office automation and communication services that will facilitate consulting work and an ongoing need to obtain education in advances in IS technology.

2. Key Applications and Exemplary Contracts

Application	Consulting	Software Develop.	Education & Training	Processing Services	Systems Integ.
Decision Support	X	X	X		X
Project Management	X	X	X		X
Office Information Systems	X	X	X		X
Desktop Publishing		X	X		X

EXEMPLARY CONTRACTS

Vendor(s)	Project	Customer	Value ($M)
PRC Inc.	Tech support to contract with nuclear plant	Ebasco Services	$30.0
Avis Information Systems	Client/server technology	Thompson & Mitchell	3.0
Cortex	CASE methodology	Price Waterhouse	Prop.
Proprietary	Communication System	Ashton Tate	2.3
Novell/Palindrome	LAN office automation	Johnson & Gibbs	Prop.

3. Market Size and Competitive Structure

See Exhibit III-11.

EXHIBIT III-11: 1990 COMPETITIVE MARKET STRUCTURE - CONSULTANT

VENDOR	CONSULTING ($M)	CONSULTING (%)	SOFTWARE DEVELOPMENT ($M)	SOFTWARE DEVELOPMENT (%)	EDUCATION & TRAINING ($M)	EDUCATION & TRAINING (%)	SYSTEMS OPERATIONS (SERVICES) ($M)	SYSTEMS OPERATIONS (SERVICES) (%)	TOTAL PROFESSIONAL SERVICES ($M)	TOTAL PROFESSIONAL SERVICES (%)	SYSTEMS OPERATIONS (PROCESSING) ($M)	SYSTEMS OPERATIONS (PROCESSING) (%)	SYSTEMS INTEGRATION (PROF. SVC. MARKET) 1 ($M)	SYSTEMS INTEGRATION (PROF. SVC. MARKET) 1 (%)
Compuware	1	14%	1	6%					2	7%				
Computer Task Group	1	7%	1	6%		0%			2	6%			1	15%
Computer Sciences Corporation				0%		0%	1	50%	2	5%	1	*		
Cap Gemini America		0%	1	6%					1	4%				
Cincinnati Bell Information Services		0%	1	6%		0%			1	4%				
Unisys	1	14%							1	3%				
Adia			1	*					1	3%				
Analysts International			1	6%					1	3%				
Keane, Inc.			1	6%					1	3%				
Digital Equipment	1	7%			1	13%			1	3%				
International Business Machines			1	6%					1	3%				
Wang Laboratories			1	6%					1	3%				
Andersen Consulting	1	*							1	2%				
AT&T					1	13%			1	2%				
Texas Instruments				0%		0%				0%				
SUBTOTAL	4	50%	9	53%	1	25%	1	50%	16	53%	1	50%	1	15%
OTHER VENDORS	4	50%	8	47%	3	75%	1	50%	14	47%	1	50%	3	85%
TOTAL MARKET	7	100%	17	100%	4	100%	2	100%	30	100%	1	100%	4	100%

NOTE 1 - The professional services components of systems integration are included here for informational purposes; these dollar amounts are allocated to the appropriate professional services categories.

"*" = "Up and Coming" Vendors

L

Health

1. Professional Services-Related Industry Issues

Issues that are shared with other verticals include integrating data bases and applications, pressures for cost reduction and/or increased productivity, merger and consolidation activity, high levels of need for government reporting, and increased attention to customer service/support.

Unique issues in health which can have an impact on professional services are the increasing dependence on software packages and integrators, and the relations between health organizations and government or academic organizations which often require new reporting and changes in information systems. The integrated approach to patient care is becoming a necessity at many large healthcare facilities where all patient information is held in the central data bases along with diagnostic information to assist the medical staff.

Reorganization of hospitals, including the establishment of subsidiary or affiliated offices that handle processing, has had an impact on the systems operation market for information service vendors. As a result of a reassessment of the work at hospitals and other health organizations, the IBM 3090 forecast for systems operations in the health market was lowered from $710 million to $628 million.

2. Key Applications and Exemplary Contracts

Application	Consulting	Software Develop.	Education & Training	Processing Services	Systems Integ.
Integrated Data base-Oriented Hospital System	X	X	X		X
Billing/ Reimbursement	X	X			X
Accounting/ Financial Analysis	X	X			
Patient Management	X	X			
Laboratory Automation	X	X	X		X

EXEMPLARY CONTRACTS

Vendor(s)	Project	Customer	Value ($M)
PRC Inc.	Integrate applications	Brooklyn VA Medical Center	$32.7
Andersen Consulting	Clinical and financial systems	Voluntary hospitals of America	50.0
Advanced Graphic	Optical Storage and Retrieval System	Maimonides Medical	0.4
Health Data Science	Medcom	Humana, Inc.	3.0
IBM/META	Patient Admit/ Discharge	Cedars-Sinai Medical	3.0
KDSI	Integrated Health Care System	Henry Ford Health Care	1.4
LabForce	Laboratory Information System	IHC	0.6E
Sytek	LAN	New York Hospital	0.7

3. Market Size and Competitive Structure

See Exhibit III-12.

EXHIBIT III-12: 1990 COMPETITIVE MARKET STRUCTURE - HEALTH

VENDOR	CONSULTING ($M)	CONSULTING (%)	SOFTWARE DEVELOPMENT ($M)	SOFTWARE DEVELOPMENT (%)	EDUCATION & TRAINING ($M)	EDUCATION & TRAINING (%)	SYSTEMS OPERATIONS (SERVICES) ($M)	SYSTEMS OPERATIONS (SERVICES) (%)	TOTAL PROFESSIONAL SERVICES ($M)	TOTAL PROFESSIONAL SERVICES (%)	SYSTEMS OPERATIONS (PROCESSING) ($M)	SYSTEMS OPERATIONS (PROCESSING) (%)	SYSTEMS INTEGRATION (PROF. SVC. MARKET) ($M)	SYSTEMS INTEGRATION (PROF. SVC. MARKET) (%)
Andersen Consulting	10	6%	25	6%	11	13%	3	3%	49	6%	3		27	18%
McDonnell Douglas Systems Integration	6	4%	18	4%	2	2%	1	1%	27	3%			6	4%
Computer Sciences Corporation	5	3%	10	2%	2	2%	6	7%	23	3%	29	4%	8	5%
Shared Medical Systems	4	2%	13	3%	1	1%	5	6%	23	3%	132	20%		
HBO & Company	5	3%	14	3%	3	3%			22	3%	55	8%		
Electronic Data Systems	2	1%	8	2%	3	3%	7	8%	20	3%	40	6%	7	5%
International Business Machines	4	2%	10	2%	4	5%	2	2%	20	3%			7	5%
Keane, Inc.	5	3%	9	2%	2	2%	2	2%	18	2%			2	1%
Compucare	1	1%	12	3%	1	1%	4	4%	18	2%				
Cycare Systems	1	1%	2		1	1%	13	15%	17	2%				
Meditech	4	2%	10	2%	2	2%			16	2%				
Deloitte & Touche	6	4%	10	2%					16	2%			4	3%
Baxter-Travenol Laboratories	2	1%	12	3%	1	1%			15	2%				
Planning Research Corporation/ATI	4	*	8	2%					12	2%			6	4%
Digital Equipment	2	1%	8	2%	2	2%			12	2%			4	3%
Arthur D. Little	7	4%	5	1%					12	2%				
Cap Gemini America	2	1%	10	2%					12	2%			2	1%
Ernst & Young	4	2%	4	1%					8	1%			2	*
John Hancock Health Plans			8	2%					8	1%	6	1%		
Price Waterhouse	5	3%	2						7	1%				
Pentamation	1	1%	3	*					4	1%	1	*		
Perot Systems							2	2%	2		14	2%		
Technicon						*					27	4%		
Texas Instruments														
SUBTOTAL	80	48%	201	46%	35	41%	45	51%	361	47%	307	47%	75	49%
OTHER VENDORS	85	52%	233	54%	51	59%	44	49%	412	53%	344	53%	78	51%
TOTAL MARKET	165	100%	434	100%	86	100%	89	100%	773	100%	651	100%	153	100%

NOTE 1 - The professional services components of systems integration are included here for informational purposes; these dollar amounts are allocated to the appropriate professional services categories.

"*" = "Up and Coming" Vendors

M

Higher Education

1. Professional Services-Related Industry Issues

Issues that are shared with other verticals include needs to reduce operating expenses, integrate networks and applications/databases, shortages of higher level IS expertise, and high levels of reporting required by government organizations.

Unique issues in higher education that can have an impact on professional services include the need to monitor student loan accounting and repayment, participation in regional network and other IS projects, and interest in improving systems that manage physical assets and development projects.

2. Key Applications and Exemplary Contracts

Application	Consulting	Software Develop.	Education & Training	Processing Services	Systems Integ.
Integrated Communications	X	X	X		X
Accounting/ Financials	X	X			
Benefits Administration	X	X			
Personnel Management		X			

EXEMPLARY CONTRACTS

Vendor(s)	Project	Customer	Value ($M)
AT&T	Communications Network	Iowa State University	14.0
Coopers & Lybrand	Student Information System	Michigan State University	2.5
IBM	Institutional File System	Univ. of Michigan	30.0
IBM	Campuswide voice/data communications system	Columbia University	13.5
NYNEX	Harvard Univ Network (HUN) (175 buildings)	Harvard University	27.0
SCT	Phase I: Administrative Computing System	Houston Community College	6.0
SCT	Phase II: Instructional Computer Environment	Houston Community College	6.5
UCS	Telecommunications System	Western Michigan University	8.8

3. Market Size and Competitive Structure

See Exhibit III-13.

EXHIBIT III-13: 1990 COMPETITIVE MARKET STRUCTURE - HIGHER EDUCATION

VENDOR	CONSULTING ($M)	CONSULTING (%)	SOFTWARE DEVELOPMENT ($M)	SOFTWARE DEVELOPMENT (%)	EDUCATION & TRAINING ($M)	EDUCATION & TRAINING (%)	SYSTEMS OPERATIONS (SERVICES) ($M)	SYSTEMS OPERATIONS (SERVICES) (%)	TOTAL PROFESSIONAL SERVICES ($M)	TOTAL PROFESSIONAL SERVICES (%)	SYSTEMS OPERATIONS (PROCESSING) ($M)	SYSTEMS OPERATIONS (PROCESSING) (%)	SYSTEMS INTEGRATION (PROF. SVC. MARKET) 1 ($M)	SYSTEMS INTEGRATION (PROF. SVC. MARKET) 1 (%)
Systems & Computer Technology	1	*	7	3%	3	6%	5	11%	16	4%	15	11%	4	6%
Digital Equipment	3	3%	9	4%	3	6%			15	3%			5	7%
International Business Machines	4	4%	5	2%	2	4%	2	4%	13	3%			4	6%
American Management Systems	1	1%	5	2%	1	2%	3	6%	10	2%	5	4%	1	1%
Texas Instruments	3	3%	7	3%					10	2%				
Electronic Data Systems	2	2%	3	1%	1	2%	4	9%	10	2%	18	13%	3	4%
Coopers & Lybrand	2	2%	5	2%	2	4%			9	2%			1	1%
AT&T	2	2%	5	2%			2	4%	9	2%		*	1	1%
National Computer Systems	4	4%	4	2%	1	2%			9	2%				
Cincinnati Bell Information Services	1	1%	5	2%	2	4%			8	2%				
Apple Computer	2	2%	5	2%	1	2%			8	2%				
KPMG (Peat Marwick)	2	2%	6	2%					8	2%			1	1%
Comp. Data Sys (US West)			5	2%			2	*	7	2%				
Andersen Consulting	2	2%	3	1%			1	2%	6	1%			3	*
AGS Computers/NYNEX	1	1%	3	*	1	2%			5	1%			2	3%
Unisys			2	1%	1	2%	2	4%	5	1%			2	3%
SUBTOTAL	30	32%	79	33%	18	37%	21	45%	148	34%	38	28%	27	39%
OTHER VENDORS	63	68%	164	67%	31	63%	26	55%	285	66%	96	72%	42	61%
TOTAL MARKET	93	100%	243	100%	49	100%	47	100%	433	100%	134	100%	69	100%

NOTE 1 - The professional services components of systems integration are included here for informational purposes; these dollar amounts are allocated to the appropriate professional services categories.

"*" = "Up and Coming" Vendors

N

Media

1. Professional Services-Related Industry Issues

Issues that are shared with other verticals include pressures for cost reduction and/or increased productivity, dealing with mergers and acquisitions, high levels of reporting to government organizations, increased attention to customer service/support, and increasing desire to customize services.

Unique issues in media that can have an impact on professional services include the increasing need for sophistication in marketing and list management systems and continuing interest in upgrading telemarketing systems.

Text processing and publishing systems are being downsized onto smaller and more standard platforms.

2. Key Applications and Exemplary Contracts

Application	Consulting	Software Develop.	Education & Training	Processing Services	Systems Integ.
Customer Service/Billing	X	X		X	
List Management		X		X	
Audience Analysis		X			
Accounting		X			
Marketing	X	X			
Integ. Publishing	X	X			X

EXEMPLARY CONTRACTS

Vendor(s)	Project	Customer	Value ($M)
Computer Horizons	Design & Development of Enterprise Data Model	Time Warner	23.0
IBM	MLB-IBM Baseball Information System	Major League Baseball	Prop.
Perot Systems	Publishing System	McGraw-Hill, Inc.	42.5
SHL Systemhouse	Automate Newspaper Publishing System	Sacramento Star	1.6
SHL Systemhouse	Office Automation	Aircraft Owners Association	1.2

3. Market Size and Competitive Structure

See Exhibit III-14.

EXHIBIT III-14: 1990 COMPETITIVE MARKET STRUCTURE - MEDIA

VENDOR	CONSULTING ($M)	CONSULTING (%)	SOFTWARE DEVELOPMENT ($M)	SOFTWARE DEVELOPMENT (%)	EDUCATION & TRAINING ($M)	EDUCATION & TRAINING (%)	SYSTEMS OPERATIONS (SERVICES) ($M)	SYSTEMS OPERATIONS (SERVICES) (%)	TOTAL PROFESSIONAL SERVICES ($M)	TOTAL PROFESSIONAL SERVICES (%)	SYSTEMS OPERATIONS (PROCESSING) ($M)	SYSTEMS OPERATIONS (PROCESSING) (%)	SYSTEMS INTEGRATION (PROF. SVC. MARKET) 1 ($M)	SYSTEMS INTEGRATION (PROF. SVC. MARKET) 1 (%)
Andersen Consulting	16	8%	20	4%	7	7%	1	6%	44	5%	2	3%	25	25%
International Business Machines	11	6%	20	4%	8	7%	1	6%	40	5%			11	11%
Cincinnati Bell Information Services	2	1%	10	2%	4	4%	4	25%	20	2%				
Ernst & Young	7	4%	12	2%					19	2%			4	4%
MARC, Inc.	15	8%	4	1%					19	2%				
McDonnell Douglas Systems Integration	2	1%	12	2%	1	1%			15	2%			2	2%
Coopers & Lybrand	4	2%	8	2%	3	3%			15	2%			2	2%
Control Data Corporation			10	2%	4	4%			14	2%			2	2%
Cap Gemini America	2	1%	8	2%	3	3%			13	2%				
National Education Corporation					12	11%			12	1%				
Computer Task Group	2	1%	7	1%	3	3%			12	1%			2	*
Hewlett-Packard	4	2%	7	1%					11	1%				
Ameritech	2	1%	6	1%	1	1%			9	1%				
Wang Laboratories	2	1%	7	1%					9	1%				
Perot Systems	3	2%	5	1%			1	6%	9	1%		*		
SHL Systemhouse	1	1%	6	*	1	1%			8	1%			1	1%
Compugraphic	2	1%	5	1%			1	*	8	1%				
Analysts International	1	1%	7	1%					8	1%				
Electronic Data Systems	1	1%	3	1%	3	3%			7	1%	11	17%	2	2%
Computer Horizons	1	1%	5	1%	1	1%			7	1%			1	1%
Allen-Bradley	2	*	4	1%					6	1%				
SUBTOTAL	80	42%	166	33%	51	48%	8	50%	305	37%	13	20%	52	53%
OTHER VENDORS	111	58%	335	67%	56	52%	8	50%	510	63%	51	80%	47	47%
TOTAL MARKET	191	100%	501	100%	107	100%	16	100%	815	100%	64	100%	99	100%

NOTE 1 - The professional services components of systems integration are included here for informational purposes; these dollar amounts are allocated to the appropriate professional services categories.

"*" = "Up and Coming" Vendors

O

Schools

1. Professional Services-Related Industry Issues

Issues that are shared with other verticals include integrating applications and databases, pressures for cost reduction and increased productivity, and high levels of reporting to government organizations.

A unique issue in schools that can have an impact on professional services is the need or interest to upgrade the technology in use. The desire to upgrade service significantly is also a unique issue.

2. Key Applications and Exemplary Contracts

Application	Consulting	Software Develop.	Education & Training	Processing Services	Systems Integ.
Accounting/ Financials	X	X		X	X
Ed. Process Monitoring	X	X	X		
Office Info. Systems		X			
Desktop Publishing		X	X		

EXEMPLARY CONTRACTS

Vendor(s)	Project	Customer	Value ($M)
Wicat	Integrated Learning System	Pulaski County, VA	.9
CCA/IBM	"Automate the Schools" Student Record Keeping	NYC	88.0
Keystone Info.	School Computer Network	Phila. City Schools	8.2
ATG/Apple	"Vivarium" Experimental Classroom	The Open School	Prop.

3. Market Size and Competitive Structure

See Exhibit III-15.

EXHIBIT III-15: 1990 COMPETITIVE MARKET STRUCTURE - SCHOOLS

VENDOR	CONSULTING ($M)	CONSULTING (%)	SOFTWARE DEVELOPMENT ($M)	SOFTWARE DEVELOPMENT (%)	EDUCATION & TRAINING ($M)	EDUCATION & TRAINING (%)	SYSTEMS OPERATIONS (SERVICES) ($M)	SYSTEMS OPERATIONS (SERVICES) (%)	TOTAL PROFESSIONAL SERVICES ($M)	TOTAL PROFESSIONAL SERVICES (%)	SYSTEMS OPERATIONS (PROCESSING) ($M)	SYSTEMS OPERATIONS (PROCESSING) (%)	SYSTEMS INTEGRATION (PROF. SVC. MARKET) 1 ($M)	SYSTEMS INTEGRATION (PROF. SVC. MARKET) 1 (%)
Digital Equipment	2	4%	6	5%	1	4%			9	4%			2	7%
Cap Gemini America	3	7%	5	4%					8	4%			2	*
International Business Machines	1	2%	3	3%	1	4%	2	10%	7	3%			1	3%
American Management Systems	1	2%	4	3%			1	5%	6	3%	1	*		
Computer Sciences Corporation	1	2%	2	2%			2	10%	5	2%	12	21%	2	7%
Unisys	2	4%	2	2%	1	4%			5	2%			2	7%
Wicat	1	*	2	2%	1	4%	1	5%	5	2%				
Computer Task Group			4	3%	1	4%			5	2%			1	3%
Control Data Corporation	1	2%	3	3%	1	4%			5	2%			1	3%
AGS Computers/NYNEX	1	2%	2	2%	1	4%	1	5%	5	2%			2	7%
Boeing Computer Services	2	4%	3	3%					5	2%			1	3%
Systems & Computer Technology	1	2%	1	1%	1	4%	2	10%	5	2%	7	12%		
Hewlett-Packard	2	4%	2	2%					4	2%				
Apple Computer	2	4%	2	2%					4	2%				
Cincinnati Bell Information Services	1	2%	2	2%	1	4%			4	2%			1	3%
Science Management Corp.	1	2%	1	1%			1	5%	4	2%				
Texas Instruments	1	2%	2	2%					3	1%				
Pentamation	1	2%	1	*				*	3	1%	2	3%		
Electronic Data Systems			2	2%			1	5%	3	1%	8	14%		
McGraw-Hill, Inc.					1	4%			1					
SUBTOTAL	24	52%	49	41%	10	40%	11	52%	96	45%	30	52%	15	52%
OTHER VENDORS	22	48%	71	59%	15	60%	10	48%	117	55%	28	48%	14	48%
TOTAL MARKET	46	100%	120	100%	25	100%	21	100%	213	100%	58	100%	29	100%

NOTE 1 - The professional services components of systems integration are included here for informational purposes; these dollar amounts are allocated to the appropriate professional services categories.

"*" = "Up and Coming" Vendors

P

State/Local Government

1. Professional Services-Related Industry Issues

Issues that are shared with other verticals include desires for cost reduction, pressures to speed up transaction processing, expand and integrate networks, integrate databases and applications, and shortages of IS personnel, particularly higher level IS personnel.

Unique issues in state & local government that can have an impact on the use of professional services include the upgrading of systems and use of new technology, the reduction of federal funds and long decision cycles that are involved in many government awards and projects.

2. Key Applications and Exemplary Contracts

Application	Consulting	Software Develop.	Education & Training	Processing Services	Systems Integ.
Administration (e.g., Networks, Accounting)	X	X			X
Tax Processing, Rev. Collection, Assessment	X	X			X
Public Safety & CAD (computer-aided dispatch)	X	X	X		X
Social Services (e.g., Benefits, Case Load)	X	X			X
Court & Criminal Justice	X	X			X

EXEMPLARY CONTRACTS

Vendor(s)	Project	Customer	Value ($M)
Price Waterhouse	Link Police, Court and FBI	LA County	10.0
EDS	Automated Licensing/ Registration	Massachusetts	9.0
Cincinnati Bell	Imaging Birth, Death Records	Virginia	2.0
Nynex	Port Auth. Credit Card Payment	N.Y. and N.J.	35.0
Oracle	Imaging for Motor Vehicles	Ohio	3.0
Motorola	Office Automation/ Integration	Tennessee	55.0
Andersen Consulting	Cost Recovery System	CA., Dept. of Division Services	3.6
BCS	Data Comm Network	PA (State)	21.6
CSC	Water/Sewer Monitor Project	MA Water Resources	16.0
FDR	Social Services EMEVS Project	NY, Dept. Soc. Svcs.	22.0
KPMG/EDS	State-wide Acct System	TX, Comptroller	8.8
McDD	Environmental Control System Support	PA, Dept. of Env. Res.	5.6
NCR Corp.	Crime Lab Network	FL, Dept. of Law Enf.	2.0
PRC	Computer Dispatch System	Phoenix, AZ Fire Dept.	5.0
SCT	Integrated Court System	Allen County, PA Comm	6.5E

Vendor(s)	Value Project	Customer	($M)
SHL Systemhouse	California Educational Financial Aid Processing Systems (CEFAPS)	California, Student Aid	5.5
SHL/Unisys	COSMOS	Washington (State)	30.0
US Sprint/ Telenet	Voice/Data Network	Illinois (State)	108.0

3. Market Size and Competitive Structure

See Exhibit III-16.

EXHIBIT III-16: 1990 COMPETITIVE MARKET STRUCTURE - STATE/LOCAL GOV'T

VENDOR	CONSULTING ($M)	CONSULTING (%)	SOFTWARE DEVELOPMENT ($M)	SOFTWARE DEVELOPMENT (%)	EDUCATION & TRAINING ($M)	EDUCATION & TRAINING (%)	SYSTEMS OPERATIONS (SERVICES) ($M)	SYSTEMS OPERATIONS (SERVICES) (%)	TOTAL PROFESSIONAL SERVICES ($M)	TOTAL PROFESSIONAL SERVICES (%)	SYSTEMS OPERATIONS (PROCESSING) ($M)	SYSTEMS OPERATIONS (PROCESSING) (%)	SYSTEMS INTEGRATION (PROF. SVC. MARKET) ($M)	SYSTEMS INTEGRATION (PROF. SVC. MARKET) (%)
Unisys	14	3%	36	3%	12	5%	1	1%	63	3%			19	9%
Andersen Consulting	16	4%	27	2%	16	6%	3	2%	62	3%	3	1%	35	17%
SHL Systemhouse	9	2%	34	3%	4	2%	6	3%	53	3%			7	3%
Electronic Data Systems	6	1%	11	1%	9	4%	23	12%	49	2%	165	34%	16	8%
Computer Sciences Corporation	12	3%	22	2%	9	4%	6	3%	49	2%	41	8%	11	5%
Grumman Data Systems	4	1%	30	3%	2	1%	8	4%	44	2%			2	1%
Boeing Computer Services	6	1%	15	1%	7	3%	8	4%	36	2%	6	1%	5	2%
Ernst & Young	5	1%	22	2%	7	3%			34	2%			6	3%
AT&T	8	2%	24	2%	2	1%			34	2%			4	2%
Planning Research Corporation/ATI	6	1%	21	2%	5	2%	1	1%	33	2%			14	7%
Digital Equipment	5	1%	21	2%	6	2%			32	2%			3	1%
International Business Machines	8	2%	9	1%	8	3%	5	3%	30	1%	2	*	7	3%
KPMG (Peat Marwick)	5	1%	20	2%	3	1%			28	1%			5	2%
Arthur D. Little	11	2%	14	1%					25	1%				
Systems & Computer Technology	1		3		1		17	9%	22	1%	7	1%		
AGS Computers/NYNEX	3	*	17	1%	2	1%			22	1%			5	2%
Deloitte & Touche	6	1%	16	1%					22	1%			2	1%
American Management Systems	4	1%	11	1%	2	1%	4	2%	21	1%	8	2%	2	1%
Comp. Data Sys (US West)	3	1%	16	*					19	1%				
Cincinnati Bell Information Services	2		15	1%					17	1%				
Science Applications Int'n'l Corp.	2		5		2	1%	5	*	14	1%				
Price Waterhouse	5	1%	6	1%	2	1%			13	1%			*	
Oracle Complex Systems	3	1%	5		1				9					
SUBTOTAL	144	32%	400	34%	100	40%	87	45%	731	35%	232	47%	143	67%
OTHER VENDORS	311	68%	771	66%	152	60%	107	55%	1341	65%	258	53%	69	33%
TOTAL MARKET	455	100%	1171	100%	252	100%	194	100%	2072	100%	490	100%	212	100%

NOTE 1 - The professional services components of systems integration are included here for informational purposes; these dollar amounts are allocated to the appropriate professional services categories.

"*" = "Up and Coming" Vendors

Q

Transportation

1. Professional Services-Related Industry Issues

Issues that are shared with other verticals include pressures for cost reduction and increased productivity, dealing with mergers and acquisitions, regulatory factors, high levels of reporting, to shortages of IS personnel with high levels of skill, government organizations, and increased attention to customer service/support.

Unique issues in transportation that can have an impact on professional services include the need to be able to change services and pricing rapidly to meet the needs of transportation customers and travelers, the increasing need to supply or interface to international transportation, and the need for highly specialized programming to upgrade reservation systems.

2. Key Applications and Exemplary Contracts

Application	Consulting	Software Develop.	Education & Training	Processing Services	Systems Integ.
Reservation Systems	X	X	X	X	X
Billing/ Accounting	X	X			
Card-Related . Process	X	X			
Scheduling	X	X	X		X

EXEMPLARY CONTRACTS

Vendor(s)	Project	Customer	Value ($M)
DEC	Aircraft Maintenance	Delta Airlines	4.6
IBM	Corporate SNA Network	United Airlines	63.0
Perception Tech	Flight Scheduling System	Delta Airlines	0.3
Unisys	Passenger Service, POS travel agent support	Japan Air Lines	70.0
Litton	Material Handling	American Airlines	17.0

3. Market Size and Competitive Structure

See Exhibit III-17.

EXHIBIT III-17: 1990 COMPETITIVE MARKET STRUCTURE - TRANSPORTATION

VENDOR	CONSULTING ($M)	CONSULTING (%)	SOFTWARE DEVELOPMENT ($M)	SOFTWARE DEVELOPMENT (%)	EDUCATION & TRAINING ($M)	EDUCATION & TRAINING (%)	SYSTEMS OPERATIONS (SERVICES) ($M)	SYSTEMS OPERATIONS (SERVICES) (%)	TOTAL PROFESSIONAL SERVICES ($M)	TOTAL PROFESSIONAL SERVICES (%)	SYSTEMS OPERATIONS (PROCESSING) ($M)	SYSTEMS OPERATIONS (PROCESSING) (%)	SYSTEMS INTEGRATION (PROF. SVC. MARKET) 1 ($M)	SYSTEMS INTEGRATION (PROF. SVC. MARKET) 1 (%)
Andersen Consulting	8	13%	16	10%	3	10%	1	25%	28	11%			16	21%
Unisys	4	6%	12	8%					16	6%			6	8%
International Business Machines	2	3%	8	5%	4	13%			14	5%			6	8%
McDonnell Douglas Systems Integration	3	5%	8	5%	1	3%			12	5%			3	4%
Analytical Sciences Corp. (The)			6	4%	3	10%			9	4%				
Arthur D. Little	4	6%	4	3%					8	3%				
Control Data Corporation	2	3%	6	4%					8	3%			4	5%
Computer Sciences Corporation	1	2%	4	3%	2	7%	1	25%	8	3%			2	3%
Lockheed	2	3%	4	3%	1	3%			7	3%				
Computer Power Group Americas		*	6	4%					6	2%				
Booz, Allen & Hamilton	2	3%	3	2%					5	2%				
Computer Horizons			4	3%					4	2%			1	1%
Ernst & Young	1	2%	2	1%	1	3%			4	2%			2	*
Texas Instruments	2	3%	1	1%	1	3%			4	2%				
KPMG (Peat Marwick)	1	2%	2	1%					3	1%				
National Education Corporation					3	10%			3	1%				
Logica/Data Architects	1	2%	2	1%		*			3	1%				
Litton Computer Services	1	2%	1	*					2	1%		*		
Intermetrics			2	1%					2	1%				
Analysts International	1	2%	1	1%					2	1%				
American Software			2	1%					2	1%				
Covia														
SUBTOTAL	35	56%	94	59%	19	63%	2	50%	150	59%	0	0%	40	53%
OTHER VENDORS	27	44%	66	41%	11	37%	2	50%	106	41%	41	100%	35	47%
TOTAL MARKET	62	100%	160	100%	30	100%	4	100%	256	100%	41	100%	75	100%

NOTE 1 - The professional services components of systems integration are included here for informational purposes; these dollar amounts are allocated to the appropriate professional services categories.

"*" = "Up and Coming" Vendors

R

Utilities

1. Professional Services-Related Industry Issues

Issues that are shared with other verticals include cost reduction or increased productivity (reflected in the rising interest in automatic meter reading and automated mapping), regulatory factors, various types of required government reporting and the continuing pressure of customer service/support.

Unique issues in utilities that can have an impact on professional services include pressures to upgrade plants (and associated systems) to maintain high utilization rates, the need to replace older technology (particularly for nuclear installations) and continuing concern about systems involved with safety in relation to nuclear as well as other facilities.

2. Key Applications and Exemplary Contracts

Application	Consulting	Software Develop.	Education & Training	Processing Services	Systems Integ.
Customer Service	X	X	X		X
Automatic Meter Reading	X	X		X	
Marketing Information	X	X			
Accounting	X	X			
Geographic Info. System	X	X		X	X

EXEMPLARY CONTRACTS

Vendor(s)	Project	Customer	Value ($M)
Andersen Consulting	Budgeting & Finance Sys.	Northeast Utilities	25.0
Andersen Consulting	Materials Management System	Florida Power	2.0
CDC (EMS)	Energy Management System	General Public Util.	32.0
Control Data Corp.	Energy Management	Omaha Power	5.0
Ebasco	Nuclear plant support system	Watts Bar Plant	Prop.

3. Market Size and Competitive Structure

See Exhibit III-18.

EXHIBIT III-18: 1990 COMPETITIVE MARKET STRUCTURE - UTILITIES

VENDOR	CONSULTING ($M)	CONSULTING (%)	SOFTWARE DEVELOPMENT ($M)	SOFTWARE DEVELOPMENT (%)	EDUCATION & TRAINING ($M)	EDUCATION & TRAINING (%)	SYSTEMS OPERATIONS (SERVICES) ($M)	SYSTEMS OPERATIONS (SERVICES) (%)	TOTAL PROFESSIONAL SERVICES ($M)	TOTAL PROFESSIONAL SERVICES (%)	SYSTEMS OPERATIONS (PROCESSING) ($M)	SYSTEMS OPERATIONS (PROCESSING) (%)	SYSTEMS INTEGRATION (PROF. SVC. MARKET) ($M)	SYSTEMS INTEGRATION (PROF. SVC. MARKET) (%)
Andersen Consulting	18	18%	25	11%	3	8%	2	17%	48	13%			35	19%
Digital Equipment	5	5%	22	9%	3	8%			30	8%			10	5%
International Business Machines	10	10%	10	4%	6	15%	1	8%	27	7%			13	7%
Control Data Corporation	1	*	18	8%	1	3%			20	5%			10	5%
Combustion Engineering	2	2%	9	4%	3	8%			14	4%				
Planning Research Corporation/ATI	3	3%	7	3%	2	5%			12	3%			6	3%
Electronic Data Systems	2	2%	3	1%	2	5%	3	25%	10	3%			3	2%
Computer Sciences Corporation	3	3%	5	2%	1	3%			9	2%			4	2%
Arthur D. Little	4	4%	3	1%					7	2%				
AGS Computers/NYNEX	2	2%	4	2%					6	2%			1	1%
Coopers & Lybrand	1	1%	4	2%	1	3%			6	2%			2	1%
KPMG (Peat Marwick)	1	1%	3	1%	1	3%			5	1%			1	*
McDonnell Douglas Systems Integration	1	1%	4	2%		*			5	1%			2	1%
Price Waterhouse			5	2%					5	1%			1	1%
Babcock & Wilcox			4	2%					4	1%				
Brandon Systems	1	1%	3	1%					4	1%				
Ernst & Young			3	1%					4	1%			2	1%
Adia			3	*					3	1%				
Computer Power Group Americas			3						3	1%				
Booz, Allen & Hamilton			1						2	1%				
Cap Gemini America			2						2	1%			2	1%
Computer Task Group			1						2	1%			1	1%
Bechtel Information Technology														
SUBTOTAL	54	55%	142	61%	23	59%	6	50%	228	60%	0	0%	93	51%
OTHER VENDORS	44	45%	92	39%	16	41%	6	50%	155	40%	33	100%	90	49%
TOTAL MARKET	98	100%	234	100%	39	100%	12	100%	383	100%	33	100%	183	100%

NOTE 1 - The professional services components of systems integration are included here for informational purposes; these dollar amounts are allocated to the appropriate professional services categories.

"*" = "Up and Coming" Vendors

S

Wholesale Distribution

1. Professional Services-Related Industry Issues

Issues that are shared with other verticals include increased attention to customer service/support, pressures for cost reduction and/or increased productivity, pressures to speed up transaction processing, integrating databases and applications, shortages of IS personnel, increasing use of electronic information (EDI), and continuing need for customization.

Unique issues in wholesale that can have an impact on professional services include the impact of Just-In-Time in manufacturing, the use of new technology (for POS, bar code, material handling and warehouse automation), and additional services/support being added by wholesalers to meet of customer needs.

2. Key Applications and Exemplary Contracts

Application	Consulting	Software Develop.	Education & Training	Processing Services	Systems Integ.
Order Entry/ Processing	X	X			X
Accounting	X	X			X
Customer Service	X	X			X
Automated Warehouse	X	X	X		X
Distribution Planning	X	X	X		X

EXEMPLARY CONTRACTS

Vendor(s)	Project	Customer	Value ($M)
DEC	Inventory Management	Kaman	Prop.
IBM/In-House	Distribution System	Amway	1.8E
Systems Unlimited	Dealer Comm. System	Porche Cars of NA	3.5
Volt Telecomm	Remote Store Comm	F.W. Woolworth's	1.5E
Business Tech. Group	Warehouse Management	Exel Logistics Distribution Centers Inc.	Prop.
SHL Systemhouse	Financial Info System	Epic Healthcare	12.0
AT&T/IBM	LAN to WAN NET	Crucible Service Centers	Prop.
UIS	Order Entry	Ace Distributors	2.0
DEC	Admin. System Custom	National Distribution	0.1

3. Market Size and Competitive Structure

See Exhibit III-19.

EXHIBIT III-19: 1990 COMPETITIVE MARKET STRUCTURE - WHOLESALE DISTRIBUTION

VENDOR	CONSULTING ($M)	CONSULTING (%)	SOFTWARE DEVELOPMENT ($M)	SOFTWARE DEVELOPMENT (%)	EDUCATION & TRAINING ($M)	EDUCATION & TRAINING (%)	SYSTEMS OPERATIONS (SERVICES) ($M)	SYSTEMS OPERATIONS (SERVICES) (%)	TOTAL PROFESSIONAL SERVICES ($M)	TOTAL PROFESSIONAL SERVICES (%)	SYSTEMS OPERATIONS (PROCESSING) ($M)	SYSTEMS OPERATIONS (PROCESSING) (%)	SYSTEMS INTEGRATION (PROF. SVC. MARKET) ($M)	SYSTEMS INTEGRATION (PROF. SVC. MARKET) (%)
Computer Sciences Corporation	8	6%	13	4%	5	7%	6	19%	32	5%	9	11%	9	8%
Andersen Consulting	4	3%	15	4%	4	6%	3	9%	26	4%	2	2%	15	13%
International Business Machines	5	4%	9	3%	3	4%	3	9%	20	3%	1	1%	7	6%
NCR	4	3%	14	4%	1	1%			19	3%				
Electronic Data Systems	4	3%	10	3%	2	3%	3	9%	19	3%	19	22%	3	3%
Ernst & Young	4	3%	8	2%	4	6%			16	3%			4	3%
Arthur D. Little	8	6%	4	1%	2	3%			14	2%				
Unisys	2	1%	4	1%	4	6%	1	3%	11	2%			4	3%
Computer Horizons	2	1%	8	2%					10	2%			1	1%
Coopers & Lybrand	2	1%	5	1%	3	4%		*	10	2%			3	3%
Deloitte & Touche		*	7	2%	2	3%			9	2%			3	3%
Control Data Corporation	2	1%	5	1%	2	3%			9	2%			4	3%
XL/Systems	1	1%	7	2%		*			8	1%				
Computer Task Group	2	1%	6	2%					8	1%			1	1%
Digital Equipment	1	1%	5	*	2	3%			8	1%			2	2%
Analytical Sciences Corp. (The)	1	1%	5	1%	1	1%			7	1%				
CACI, Inc.	2	1%	3	1%	1	1%			6	1%				
SHL Systemhouse	2	1%	4	1%					6	1%			1	1%
GEIS Co	1	1%	4	1%					5	1%				
American Software	2	1%	2	1%					4	1%				
Dun & Bradstreet	1	1%	2	1%					3	1%				
McDonnell Douglas Systems Integration	1	1%	2	1%					3	1%				
Triad			2	1%					2					
AT&T														*
SUBTOTAL	59	44%	144	41%	36	51%	16	50%	255	43%	31	36%	57	49%
OTHER VENDORS	75	56%	210	59%	35	49%	16	50%	336	57%	54	64%	60	51%
TOTAL MARKET	134	100%	354	100%	71	100%	32	100%	591	100%	85	100%	117	100%

NOTE 1 - The professional services components of systems integration are included here for informational purposes; these dollar amounts are allocated to the appropriate professional services categories.

"*" = "Up and Coming" Vendors

T

Retail Distribution

1. Professional Services-Related Industry Issues

Issues that are shared with other verticals include pressures for cost reduction and/or increased productivity, dealing with mergers and acquisitions, and increased attention to customer service/support.

Unique issues in retail distribution that can have an impact on professional services include the increasing use of POS and check authorization, further diversification of products and services to meet customer demands, and new concepts in retail including shopping at home, electric couponing and more collection of data on shopping habits of customers which can require changes to existing systems.

2. Key Applications and Exemplary Contracts

Application	Consulting	Software Develop.	Education & Training	Processing Services	Systems Integ.
Card Authorization/ Processing	X		X	X	
POS and Related	X	X			X
Accounting	X	X			X
Warehouse Automation	X	X			X
Merchandising	X	X	X		X

EXEMPLARY CONTRACTS

Vendor(s)	Project	Customer	Value ($M)
Litton	Automated Material Handling	Sears	6.0
DEC	Merchandising System	Toys R Us	16.5
DEC	Merchandising	CVS Pharmacies	16.5
DEC	Merchandising	Victoria's Secret	16.5
EDS/Customer	Prism 7	K Mart	143.2E
GTE Spacenet	VSAT Network	K Mart	60.0
Hughes	Satellite Network	Service Merchandise	8.0
IBM	Network	Agway Stores	14.0
IBM/NCR	POS System (400 stores)	Burger King	20.0
Illinois Bell	ISDN	McDonalds Corp.	1.0E
Southwestern Bell	Microwave Network	Venture Stores/May	0.7
Tel Plus Communication	Network Upgrade	Burdine's Dept. Store	1.0

3. Market Size and Competitive Structure

See Exhibit III-20.

EXHIBIT III-20: 1990 COMPETITIVE MARKET STRUCTURE - RETAIL DISTRIBUTION

VENDOR	CONSULTING		SOFTWARE DEVELOPMENT		EDUCATION & TRAINING		SYSTEMS OPERATIONS (SERVICES)		TOTAL PROFESSIONAL SERVICES		SYSTEMS OPERATIONS (PROCESSING)		SYSTEMS INTEGRATION (PROF. SVC. MARKET) 1	
	($M)	(%)	($M)	(%)	($M)	(%)	($M)	(%)	($M)	(%)	($M)	(%)	($M)	(%)
Andersen Consulting	9	4%	30	6%	6	6%	2	10%	47	5%	1	1%	27	15%
Electronic Data Systems	9	4%	25	5%	6	6%			40	5%	30	25%	12	7%
NCR	10	5%	20	4%	4	4%			34	4%				
International Business Machines	4	2%	13	2%	5	5%	2	10%	24	3%	1	1%	9	5%
Unisys	6	3%	10	2%	7	7%			23	3%			7	4%
Computer Sciences Corporation	4	2%	8	2%	3	3%	3	14%	20	2%			5	3%
Ernst & Young	7	3%	9	2%	3	3%			19	2%			5	3%
AT&T	7	3%	8	2%	4	4%	3	14%	19	2%				
SHL Systemhouse	4	2%	13	2%					17	2%			5	3%
AGS Computers/NYNEX	4	2%	10	2%	2	2%			16	2%			3	2%
Digital Equipment	3	1%	7	*	5	5%			15	2%			8	4%
Control Data Corporation	2	1%	9	2%	3	3%			14	2%			6	3%
Coopers & Lybrand	3	1%	9	2%	2	2%			14	2%			3	2%
Deloitte & Touche	2	1%	7	1%	2	2%			11	1%			2	1%
KPMG (Peat Marwick)	1		6	1%					7	1%				
Hewlett-Packard	1		5	1%					6	1%				
Booz, Allen & Hamilton	2	1%	3	1%					5	1%				
Triad			5	*					5	1%				
GTE	1	*	4	1%					5	1%				*
Litton Computer Services	1		2						3		4	*		
Effective Management			2						2					
DMR														
SUBTOTAL	80	39%	205	39%	52	50%	10	48%	346	40%	36	30%	92	50%
OTHER VENDORS	123	61%	327	61%	52	50%	11	52%	514	60%	83	70%	91	50%
TOTAL MARKET	203	100%	532	100%	104	100%	21	100%	860	100%	119	100%	183	100%

NOTE 1 - The professional services components of systems integration are included here for informational purposes; these dollar amounts are allocated to the appropriate professional services categories.

"*" = "Up and Coming" Vendors

U

Finance

1. Professional Services-Related Industry Issues

Issues that are shared with other verticals include pressures for cost reduction and/or increased productivity, pressures to speed up transaction processing, integrating networks, integrating databases and applications, shortages of higher level IS people, the use of electronic information, dealing with mergers and acquisitions, regulatory factors, increased attention to customer service/support, and continuing need for customization.

Unique issues in finance that can have an impact on professional services include the globalization of financial markets, restructuring of the industry, and change in products/services that is taking place as a result of regulatory change and economic performance of sectors of the market. Another unique issue in finance is the drive to lower costs generally and specifically to avoid the addition of permanent IS or other personnel. The use of vendor processing and systems operations services is being affected by mergers and other changes in organizations as well as by increasing interest in generating fee-based income through the further development of card, mortgage, and investment handling services. This has resulted in a reduction in the 1990 IBM market forecast in banking for systems operations professional services to $165 million from the original forecast of $293 million.

2. Key Applications and Exemplary Contracts

Application	Consulting	Software Develop.	Education & Training	Processing Services	Systems Integ.
Card-Related	X	X		X	X
Correspondent Banking	X	X	X	X	X
Trading & Funds System	X	X	X		
Consumer Loan	X	X	X		

EXEMPLARY CONTRACTS

Vendor(s)	Project	Customer	Value ($M)
IBM	Asset Tracking/process	Resolution Trust	24.2
MCI	Global Communications	VISA	87.0
IBM	Outsourcing	First Boston	90.0
IBM	Develop and Operation	SE Banking	Prop.
AT&T	Terminal Deployment	Federal Reserve	1.5
AMS	Letters of Credit	Bank of Nebraska	1.0E
Analysts International	Banknet Communication System Applications	MasterCard International	Prop.
DMR	Reengineer Retail Banking Sub-System	Chemical Bank	Prop.
EDS	Banking Customer Info. Systems	BankOne	50.0E
Hughes Network Sys	Network Hub Installation (2-way data, 1-way video)	Edward D. Jones	30.0
IBM	Banking Application	Chase Manhattan	25.0E
Marshal & Isley	Integrated Deposit Sys	Moore Financial	8.0
Systematics	Banking Applications	City National Bank	3.5

3. Market Size and Competitive Structure

See Exhibit III-21.

EXHIBIT III-21: 1990 COMPETITIVE MARKET STRUCTURE - FINANCE

VENDOR	CONSULTING ($M)	CONSULTING (%)	SOFTWARE DEVELOPMENT ($M)	SOFTWARE DEVELOPMENT (%)	EDUCATION & TRAINING ($M)	EDUCATION & TRAINING (%)	SYSTEMS OPERATIONS (SERVICES) ($M)	SYSTEMS OPERATIONS (SERVICES) (%)	TOTAL PROFESSIONAL SERVICES ($M)	TOTAL PROFESSIONAL SERVICES (%)	SYSTEMS OPERATIONS (PROCESSING) ($M)	SYSTEMS OPERATIONS (PROCESSING) (%)	SYSTEMS INTEGRATION (PROF. SVC. MARKET) ($M)	SYSTEMS INTEGRATION (PROF. SVC. MARKET) (%)
Andersen Consulting	16	4%	51	4%	16	6%	8	4%	91	4%	2		45	28%
TRW, Inc.	15	3%	37	3%	8	3%	4	2%	64	3%	8	1%		
Electronic Data Systems	10	2%	18	2%	8	3%	24	13%	60	3%	71	6%	16	10%
International Business Machines	11	2%	28	2%	9	4%	7	4%	55	3%	5		13	8%
Computer Sciences Corporation	6	1%	29	3%	4	2%	15	8%	54	3%			9	6%
Cap Gemini America	3	1%	30	3%	5	2%	4	2%	42	2%			3	2%
Unisys	6	1%	15	1%	13	5%	2	1%	36	2%			5	3%
Digital Equipment	5	1%	16	1%	11	4%			32	2%			6	4%
SEI Corporation	6	1%	21	2%	4	2%			31	2%	33	3%		
AT&T	6	1%	22	2%	2	1%			30	1%			4	2%
American Management Systems	2		17	1%	2	1%	5	*	26	1%			4	2%
Coopers & Lybrand	6	1%	13	1%	5	2%	1	1%	25	1%			2	1%
KPMG (Peat Marwick)	7	2%	14	1%	2	1%			23	1%			10	6%
Shared Financial	5	1%	15	1%	2	1%			22	1%				
Price Waterhouse	6	1%	12	1%					18	1%			1	1%
Ernst & Young	2		11	1%	4	2%	1	1%	18	1%			4	2%
Logica/Data Architects	4	1%	10	1%	2	1%			16	1%				
Security Pacific Corporation	3	1%	5		2	1%	3	2%	13	1%				
Comtex	2		11	*					13	1%				
Booz, Allen & Hamilton	6	*	5						11	1%				
Systematics	3	1%	4			*	3	2%	10		160	13%		
McKinsey	5	1%	4						9					
SUBTOTAL	135	31%	388	34%	99	39%	77	42%	699	34%	279	22%	122	75%
OTHER VENDORS	307	69%	765	66%	156	61%	105	58%	1334	66%	972	78%	41	25%
TOTAL MARKET	442	100%	1153	100%	255	100%	182	100%	2033	100%	1251	100%	163	100%

NOTE 1 - The professional services components of systems integration are included here for informational purposes; these dollar amounts are allocated to the appropriate professional services categories.

"*" = "Up and Coming" Vendors

V

Insurance

1. Professional Services-Related Industry Issues

Issues that are shared with other verticals include pressures for cost reduction and increased productivity, above average shortages of IS personnel, need for government reporting, and increased attention to customer service/support.

Unique issues in insurance include the financial weakness of certain insurance companies which may in the future lead to outsourcing contracts similar to the banking industry. An ongoing trend is the development/support of new products and the need to provide more timely and accurate information to independent and captive agents. This sector is one of the prime candidates for image processing applications, given the historic reliance on paper.

2. Key Applications and Exemplary Contracts

Application	Consulting	Software Develop.	Education & Training	Processing Services	Systems Integ.
Claims Processing	X	X		X	X
Accounting & Payment Processing	X	X		X	X
Customer Service	X	X	X		
Marketing	X	X	X		X
Agent Systems	X	X			X
Accounting	X	X			
Risk Analysis	X	X			

EXEMPLARY CONTRACTS

Vendor(s)	Project	Customer	Value ($M)
McDonnell Douglas	Integrated Billing	Transamerica	Prop.
Power Comp	Outsource Computer Operation	Epic Healthcare	12.0
Andersen Consulting	Accounting Support Sys	Chicago Title	Prop.
Equifax	Direct Billing Project	Royal Ins of Am.	10.0
Plexus Computers	Image Retrieval & Information System (IRIS)	Prudential Ins Co.	10.0
Software Altern	Tracking System	American Security	0.8
The Continuum Corp.	Client Contract Admin.	Principal Mutual	30.0E
The Continuum Corp.	Client Contract Admin.	Equitable Life	40.0
Perot	Outsourcing	ICH	10.0

3. Market Size and Competitive Structure

See Exhibit III-22.

EXHIBIT III-22: 1990 COMPETITIVE MARKET STRUCTURE - INSURANCE

VENDOR	CONSULTING ($M)	CONSULTING (%)	SOFTWARE DEVELOPMENT ($M)	SOFTWARE DEVELOPMENT (%)	EDUCATION & TRAINING ($M)	EDUCATION & TRAINING (%)	SYSTEMS OPERATIONS (SERVICES) ($M)	SYSTEMS OPERATIONS (SERVICES) (%)	TOTAL PROFESSIONAL SERVICES ($M)	TOTAL PROFESSIONAL SERVICES (%)	SYSTEMS OPERATIONS (PROCESSING) ($M)	SYSTEMS OPERATIONS (PROCESSING) (%)	SYSTEMS INTEGRATION (PROF. SVC. MARKET) ($M)	SYSTEMS INTEGRATION (PROF. SVC. MARKET) (%)
International Business Machines	21	6%	45	5%	14	7%	10	8%	90	5%	55	8%	10	9%
Andersen Consulting	16	4%	36	4%	15	7%	5	4%	72	4%	27	4%	28	26%
Policy Management Systems	21	6%	49	5%					70	4%	40	6%		
Electronic Data Systems	14	4%	27	3%	11	5%	13	11%	65	4%	147	22%	10	9%
Continuum Company (The)	5	1%	35	4%			18	15%	58	4%				
Computer Sciences Corporation	8	2%	17	2%	6	3%	11	9%	42	3%	40	6%	5	5%
Ernst & Young	8	2%	23	2%	3	1%			34	2%			7	6%
Cap Gemini America	2	1%	25	3%	4	2%	1	*	32	2%			2	2%
McDonnell Douglas Systems Integration	5	1%	16	2%	5	2%			26	2%			2	*
Deloitte & Touche	9	2%	12	1%	2	1%			23	1%			1	1%
Coopers & Lybrand	6	2%	13	1%	2	1%			21	1%			2	2%
CAPSCO PALLM Systems	3	1%	15	2%	2	1%			20	1%				
Perot Systems	6	*	10	1%	2	1%			18	1%	1	*		
Keane, Inc.	3	1%	10	1%	4	2%	1	1%	18	1%			1	1%
Arthur D. Little	8	2%	6	1%	3	1%			17	1%				
Price Waterhouse	6	2%	9	1%	2	1%			17	1%			1	1%
DMR	2	1%	12	1%	3	1%			17	1%				
KPMG (Peat Marwick)	5	1%	10	*	1				16	1%				
AGS Computers/NYNEX	1		12	1%			2	2%	15	1%			2	2%
Computer Task Group	1		11	1%					12	1%				
McKinsey	3	1%	3						6					
SUBTOTAL	153	42%	396	41%	79	37%	61	50%	689	42%	310	45%	71	65%
OTHER VENDORS	209	58%	562	59%	136	63%	61	50%	968	58%	372	55%	38	35%
TOTAL MARKET	362	100%	958	100%	215	100%	122	100%	1657	100%	682	100%	109	100%

NOTE 1 - The professional services components of systems integration are included here for informational purposes; these dollar amounts are allocated to the appropriate professional services categories.

"*" = "Up and Coming" Vendors

W

Securities

1. Professional Services-Related Industry Issues

Issues that are shared with other verticals include pressures to speed up transaction processing; integrating networks, databases and applications, pressures for cost reduction and/or increased productivity; dealing with mergers and acquisitions; increased attention to customer service/support, and continuing need for customization.

Unique issues in securities that can impact professional services include the financial weakness of some firms, the development/support of new products, global trading, and the increasing complexity of trading and support functions.

As discussed in banking, mergers and changes in organizations as well as some cooperative processing has led to a reduction in the use of systems operations professional services from the 1990 forecast figures of $64 million to $36 million.

2. Key Applications and Exemplary Contracts

Application	Consulting	Software Develop.	Education & Training	Processing Services	Systems Integ.
Clearance & Settlement	X	X		X	
Securities Transfer	X	X		X	
Accounting/ Finance	X	X			
Portfolio Management	X	X			

EXEMPLARY CONTRACTS

Vendor(s)	Project	Customer	Value ($M)
MCI	Nationwide Data Network	NASDAQ	10.0
Telenet Communications	Switching Network	Federal Reserve	3.5

3. Market Size and Competitive Structure

See Exhibit III-23.

EXHIBIT III-23: 1990 COMPETITIVE MARKET STRUCTURE - SECURITIES

VENDOR	CONSULTING ($M)	CONSULTING (%)	SOFTWARE DEVELOPMENT ($M)	SOFTWARE DEVELOPMENT (%)	EDUCATION & TRAINING ($M)	EDUCATION & TRAINING (%)	SYSTEMS OPERATIONS (SERVICES) ($M)	SYSTEMS OPERATIONS (SERVICES) (%)	TOTAL PROFESSIONAL SERVICES ($M)	TOTAL PROFESSIONAL SERVICES (%)	SYSTEMS OPERATIONS (PROCESSING) ($M)	SYSTEMS OPERATIONS (PROCESSING) (%)	SYSTEMS INTEGRATION (PROF. SVC. MARKET) ($M)	SYSTEMS INTEGRATION (PROF. SVC. MARKET) (%)
Andersen Consulting	5	5%	20	8%	6	11%	2	5%	33	8%			14	40%
AT&T	7	7%	15	6%	4	7%			26	6%				
Securities Industry Automation	15	16%	10	4%					25	6%	110	40%		
Disclosure, Inc.	3	3%	15	6%					18	4%	21	8%		
International Business Machines	3	3%	8	3%	2	4%	1	3%	14	3%			4	11%
Digital Equipment	1	1%	7	3%	2	4%			10	2%			2	6%
Security Pacific Corporation	2	2%	4	2%			4	10%	10	2%				
TRW, Inc.	2	2%	4	2%	1	2%	1	3%	8	2%			1	*
National Education Corporation					6	11%	1	3%	7	2%				
Ernst & Young	1	1%	4	2%	2	4%			7	2%			1	3%
Coopers & Lybrand	1	1%	2	1%	3	5%			6	1%			1	3%
Computer Task Group	1	1%	4	2%	1	2%			6	1%			1	3%
VISA USA							5	13%	5	1%				
Data General	1	1%	4	2%					5	1%				
Computer Horizons			3	1%	1	2%			4	1%				
DST Systems	1	*	3	1%					4	1%				
Booz, Allen & Hamilton	1	1%	3	1%					4	1%				
Teknekron Financial Services			3	*					3	1%				
Automated Data Processing							3	*	3	1%				
Electronic Data Systems							2	5%	2		2	1%		
Comtex			2	1%					2					
SUBTOTAL	44	46%	111	45%	28	51%	19	48%	202	46%	133	49%	24	69%
OTHER VENDORS	52	54%	138	55%	27	49%	21	53%	238	54%	141	51%	11	31%
TOTAL MARKET	96	100%	249	100%	55	100%	40	100%	440	100%	274	100%	35	100%

NOTE 1 - The professional services components of systems integration are included here for informational purposes; these dollar amounts are allocated to the appropriate professional services categories.

"*" = "Up and Coming" Vendors

X

Federal Government

1. Professional Services-Related Industry Issues

Issues that are shared with other verticals include the need to integrate networks, pressures for cost reduction and increased productivity, shortages of IS personnel including those with higher levels of IS knowledge, increasing use of electronic information (EDI and electronic part information in the defense industry - e.g. P-DES), and continuing need for customization of software packages.

Unique issues in the federal government that can have an impact on professional services include improving the information supplied to executive and legislative offices, changes in contracting for services as reflected in Competition in Contract Act (CICA), and continuing interests in achieving software standards.

The most significant issue in the federal government market is the reduction in expenditures for defense that has led to lower planned expenditures for professional services.

2. Key Applications and Exemplary Contracts

Application	Consulting	Software Develop.	Education & Training	Processing Services	Systems Integ.
Budgets/ Accounting	X	X			X
Records Management	X	X	X	X	X
Work Sched., Mgmt.	X	X		X	X
Integrated Logistics	X	X	X	X	X
Office Info. Systems	X	X	X	X	

EXEMPLARY CONTRACTS

Vendor(s)	Project	Customer	Value ($M)
AMS	Document Image Processing System	VA	3.0
Andersen Consulting	Integrated Financial/ Administrative System (IFAS)	SSA	12.0
Andersen Consulting	Logistics & Inventory Systems (LIS)	FAA	7.4
BCS	Remote Computing Services & Technical Support	IRS	2.0
CDS	Facilities Management	GSA	12.5
Centel Federal Sys	Technical Assistance & Mgmt. Services (TAMS)	GSA	29.4
CSC	Computer S/W Services	NASA	170.0
CSC	National Electronic Accounting & Reporting (NEAR)	GSA	21.5
CSC	Office Automation System	NASA, Kennedy Space	13.5
Contel Federal Sys	Southeast Region Administrative Telephone System (SERATS)	U.S. Army	14.0
CDC	Data processing and Telecomm. System Support and Management Services	DoE	158.0
Coopers & Lybrand	Data processing, SI, and Compliance Review	GNMA	35.0

Vendor(s)	Project	Customer	Value ($M)
EDS/TRW	Unified LAN Architecture (ULANA)	U.S. Air Force	150.0
Grumman Data	Advanced Tactical Air Control Central (ATACC)	U.S. Marine Corp	23.0
Grumman Data	Engineering Analysis and Data System (EADS)	NASA, Marshall	60.0
Harris Corp.	S/W Support at Gunter AF Base	U.S. Air Force	100.0
Hughes/H-P	Office Automation System (Connectivity support)	U.S. Navy, Puget	10.0
IBM	Integrated Collection System	IRS	105.0
IMS	CDMS - Phase II	U.S. Air Force, Logistics	93.0
Intergraph/Sci-tech	Automated Graphics Digitizing Sys (AGDS)	DoI, USGS	4.6
McDonnell Douglas	Automated Message	U.S. Air Force	40.0
NET Federal, Inc.	Digital Backbone Network	U.S. Postal Service	7.0
Network Solutions	Mainframe Installation & Maintenance	NSF	15.0
Paradyne Corp.	Maintenance of Communications System	FAA	11.0
Perception Tech	Voice Systems Equipment	SAA	3.0

Vendor(s)	Project	Customer	($M)
Perot Systems	Automation Project	U.S. Postal Service	0.5
PRC	Image Processing System	U.S. Patent Office	166.0
PRC	Mail Tracing System	U.S. Postal Service	270.0
PRC	Software Engineering	GSA	67.0
SAIC	Composite Health Care System (CHCS)	DoD, Off of Sec	100.0
Sage/Perot Systems	APS Development Center	Los Alamos Nat Lab	0.3
Sterling Software	Communications Support Processor II (CSP II)	U.S. Air Force, Intelligence	47.5
Sun	Ada Software Implement.	U.S. Air Force	48.0
TRW/ACER	US Naval Academy Auto.	U.S. Navy	15.0
Tandem Computers	FAA Network Expansion	FAA	61.0
Unisys Corp.	Unix-based Systems	Department of Labor	10.0
Unisys Corp.	ADP Support Services	DoT	20.0

3. Market Size and Competitive Structure

See Exhibit III-24.

EXHIBIT III-24: 1990 COMPETITIVE MARKET STRUCTURE - FEDERAL GOVERNMENT

VENDOR	CONSULTING ($M)	CONSULTING (%)	SOFTWARE DEVELOPMENT ($M)	SOFTWARE DEVELOPMENT (%)	EDUCATION & TRAINING ($M)	EDUCATION & TRAINING (%)	SYSTEMS OPERATIONS (SERVICES) ($M)	SYSTEMS OPERATIONS (SERVICES) (%)	TOTAL PROFESSIONAL SERVICES ($M)	TOTAL PROFESSIONAL SERVICES (%)	SYSTEMS OPERATIONS (PROCESSING) ($M)	SYSTEMS OPERATIONS (PROCESSING) (%)	SYSTEMS INTEGRATION (PROF. SVC. MARKET) 1 ($M)	SYSTEMS INTEGRATION (PROF. SVC. MARKET) 1 (%)
Computer Sciences Corporation	72	8%	145	7%	19	5%	128	12%	364	8%	96	32%	121	9%
Science Applications Int'n'l Corp.	100	11%	149	7%	35	10%	51	5%	335	7%			131	10%
Martin Marietta Info. Systems	68	7%	167	8%	29	8%	9	1%	273	6%			170	13%
Electronic Data Systems	49	5%	97	4%	26	7%	75	7%	247	5%	67	22%	87	6%
International Business Machines	71	8%	129	6%	31	8%	7	1%	238	5%			132	10%
BDM International/Ford	33	4%	110	5%	6	2%	59	6%	208	5%				
Unisys	50	6%	139	6%	7	2%	7	1%	203	5%			60	4%
Logicon	40	4%	150	7%	12	3%			202	4%				
Planning Research Corporation/ATI	68	7%	95	4%	30	8%	4		197	4%			101	7%
Boeing Computer Services	35	4%	77	3%	17	5%	40	4%	169	4%	12	4%	58	4%
Control Data Corporation	15	2%	49	2%	17	5%	1		82	2%	4	1%	38	3%
Grumman Data Systems	33	4%	35	2%	10	3%	2		80	2%	9	3%	45	3%
Bolt Beranek And Newman	26	3%	52	2%					78	2%				
Centel	12	1%	28	1%			33	3%	73	2%				
Syscon Corporation			50	2%	4	1%	19	2%	73	2%	20	7%		
Digital Equipment	8	1%	40	2%	6	2%			54	1%			10	1%
Comp. Data Sys (US West)	3		37	2%		*	12	1%	52	1%				
Telos Corp.	2		38	2%			10	1%	50	1%				
COMARCO	3		15	1%	8	2%	22	2%	48	1%				
Cincinnati Bell Information Services	5	1%	5		36	10%	2		48	1%				
American Management Systems	5	1%	20	1%	3	1%	4	*	32	1%	7	2%	1	
Oracle Complex Systems		*												
Perot Systems												*		
SUBTOTAL	698	77%	1627	74%	296	80%	485	47%	3106	69%	215	71%	954	70%
OTHER VENDORS	210	23%	578	26%	72	20%	542	53%	1402	31%	86	29%	406	30%
TOTAL MARKET	908	100%	2205	100%	368	100%	1027	100%	4508	100%	301	100%	1360	100%

NOTE 1 - The professional services components of systems integration are included here for informational purposes; these dollar amounts are allocated to the appropriate professional services categories.

"*" = "Up and Coming" Vendors

Appendix: Tables

TABLE 1

INPUT FORECAST WITH INFLATION
BY INDUSTRY MODE

SEGMENTATION	1989 ($M)	1990 ($M)	1991 ($M)	1992 ($M)	1993 ($M)	1994 ($M)	1995 ($M)	1996 ($M)	CAGR 90-95
DISCRETE MANUFACTURING									
PROFESSIONAL SERVICES	3754	4163	4588	5094	5748	6572	7572	8534	13%
SYSTEMS OPERATIONS (PS)	56	68	78	89	101	116	136	156	15%
SYSTEMS OPERATIONS (PROC)	331	413	517	641	789	970	1193	1475	24%
SYSTEMS INTEGRATION	415	536	669	816	1007	1270	1616	2015	25%
SOFTWARE DEVELOPMENT	207	271	344	414	503	637	814	1014	25%
DESIGN/INTEGRATION	90	114	138	169	213	271	344	429	25%
PROJECT MGMT/CONSULTING	86	109	133	165	207	262	332	415	25%
EDUCATION/TRAINING	16	21	27	34	42	50	63	78	25%
OPERATIONS/MAINTENANCE	16	21	27	34	42	50	63	78	25%
TOTAL	4556	5180	5852	6640	7645	8928	10517	12181	15%
PROCESS MANUFACTURING									
PROFESSIONAL SERVICES	1749	1977	2196	2462	2785	3206	3729	4234	14%
SYSTEMS OPERATIONS (PS)	58	67	76	87	100	115	135	155	15%
SYSTEMS OPERATIONS (PROC)	388	454	527	611	702	815	978	1140	17%
SYSTEMS INTEGRATION	61	74	89	104	127	158	194	235	21%
SOFTWARE DEVELOPMENT	34	41	48	57	69	86	105	127	21%
DESIGN/INTEGRATION	10	12	15	18	22	27	33	40	22%
PROJECT MGMT/CONSULTING	11	13	16	19	24	29	36	44	23%
EDUCATION/TRAINING	3	4	5	5	6	8	10	12	20%
OPERATIONS/MAINTENANCE	3	4	5	5	6	8	10	12	20%
TOTAL	2256	2572	2888	3264	3714	4294	5036	5764	14%

TABLE 1

INPUT FORECAST WITH INFLATION
BY INDUSTRY MODE

SEGMENTATION	1989 ($M)	1990 ($M)	1991 ($M)	1992 ($M)	1993 ($M)	1994 ($M)	1995 ($M)	1996 ($M)	CAGR 90-95
TRANSPORTATION									
PROFESSIONAL SERVICES	188	213	241	272	308	349	395	447	13%
SYSTEMS OPERATIONS (PS)	2	2	3	3	4	4	5	6	20%
SYSTEMS OPERATIONS (PROC)	43	49	58	66	75	87	101	117	16%
SYSTEMS INTEGRATION	83	90	98	109	133	165	218	261	19%
SOFTWARE DEVELOPMENT	43	48	50	55	67	84	109	128	18%
DESIGN/INTEGRATION	15	16	18	21	26	33	43	52	22%
PROJECT MGMT/CONSULTING	18	19	22	25	31	38	52	64	22%
EDUCATION/TRAINING	4	4	5	5	5	6	8	9	15%
OPERATIONS/MAINTENANCE	3	3	3	3	4	4	6	7	15%
TOTAL	314	352	397	447	516	601	714	824	15%
UTILITIES									
PROFESSIONAL SERVICES	221	233	254	281	312	347	386	427	11%
SYSTEMS OPERATIONS (PS)	5	6	6	7	8	10	11	12	13%
SYSTEMS OPERATIONS (PROC)	35	39	44	50	58	66	79	91	15%
SYSTEMS INTEGRATION	197	218	243	274	314	365	425	486	14%
SOFTWARE DEVELOPMENT	98	109	120	136	155	180	211	241	14%
DESIGN/INTEGRATION	35	39	44	49	57	66	77	88	15%
PROJECT MGMT/CONSULTING	45	50	56	64	73	86	100	115	15%
EDUCATION/TRAINING	11	12	14	15	17	20	22	25	13%
OPERATIONS/MAINTENANCE	8	8	9	10	12	13	15	17	13%
TOTAL	458	496	547	612	692	788	901	1016	13%

TABLE 1

INPUT FORECAST WITH INFLATION
BY INDUSTRY MODE

SEGMENTATION	1989 ($M)	1990 ($M)	1991 ($M)	1992 ($M)	1993 ($M)	1994 ($M)	1995 ($M)	1996 ($M)	CAGR 90-95
TELECOMMUNICATIONS									
PROFESSIONAL SERVICES	825	950	1088	1240	1429	1656	1927	2220	15%
SYSTEMS OPERATIONS (PS)	16	19	23	26	30	35	40	46	16%
SYSTEMS OPERATIONS (PROC)	40	45	52	60	70	81	97	113	17%
SYSTEMS INTEGRATION	93	112	131	150	180	229	291	352	21%
SOFTWARE DEVELOPMENT	54	64	76	86	102	131	166	201	21%
DESIGN/INTEGRATION	16	19	23	26	32	41	52	64	22%
PROJECT MGMT/CONSULTING	19	24	25	30	37	47	60	72	20%
EDUCATION/TRAINING	3	4	5	6	7	8	10	12	20%
OPERATIONS/MAINTENANCE	1	1	2	2	2	2	3	4	25%
TOTAL	974	1126	1294	1476	1709	2001	2355	2732	16%
RETAIL DISTRIBUTION									
PROFESSIONAL SERVICES	185	207	223	242	265	294	328	360	10%
SYSTEMS OPERATIONS (PS)	5	6	6	7	8	9	10	11	11%
SYSTEMS OPERATIONS (PROC)	57	71	88	109	136	170	212	264	24%
SYSTEMS INTEGRATION	111	141	179	226	287	371	487	624	28%
SOFTWARE DEVELOPMENT	58	75	95	119	151	193	255	326	28%
DESIGN/INTEGRATION	23	28	36	45	58	77	101	131	29%
PROJECT MGMT/CONSULTING	22	28	34	44	56	73	97	124	28%
EDUCATION/TRAINING	4	5	7	9	11	14	17	22	28%
OPERATIONS/MAINTENANCE	4	5	7	9	11	14	17	22	28%
TOTAL	358	425	496	584	696	844	1037	1259	20%

TABLE 1

INPUT FORECAST WITH INFLATION
BY INDUSTRY MODE

SEGMENTATION	1989 ($M)	1990 ($M)	1991 ($M)	1992 ($M)	1993 ($M)	1994 ($M)	1995 ($M)	1996 ($M)	CAGR 90-95
WHOLESALE DISTRIBUTION									
PROFESSIONAL SERVICES	293	327	357	387	423	465	509	556	9%
SYSTEMS OPERATIONS (PS)	20	23	26	29	33	38	45	51	14%
SYSTEMS OPERATIONS (PROC)	58	69	82	98	117	141	170	204	20%
SYSTEMS INTEGRATION	73	82	91	103	117	137	164	188	15%
SOFTWARE DEVELOPMENT	40	44	49	55	63	74	87	100	15%
DESIGN/INTEGRATION	14	15	17	19	22	26	32	37	16%
PROJECT MGMT/CONSULTING	13	15	17	19	22	25	31	36	16%
EDUCATION/TRAINING	3	4	4	5	5	6	7	8	12%
OPERATIONS/MAINTENANCE	3	4	4	5	5	6	7	8	12%
TOTAL	444	501	556	617	690	781	888	1000	12%
BANKING AND FINANCE									
PROFESSIONAL SERVICES	1950	2044	2184	2396	2671	3005	3381	3739	11%
SYSTEMS OPERATIONS (PS)	200	213	245	282	324	373	428	493	15%
SYSTEMS OPERATIONS (PROC)	1318	1529	1758	2022	2325	2674	3262	3796	16%
SYSTEMS INTEGRATION	153	194	243	304	393	519	681	876	29%
SOFTWARE DEVELOPMENT	72	92	115	140	181	241	315	403	28%
DESIGN/INTEGRATION	35	44	54	70	92	120	159	206	29%
PROJECT MGMT/CONSULTING	34	42	52	68	88	116	153	198	30%
EDUCATION/TRAINING	6	8	11	13	16	21	27	34	28%
OPERATIONS/MAINTENANCE	6	8	11	13	16	21	27	34	28%
TOTAL	3621	3980	4430	5004	5713	6571	7752	8903	14%

TABLE 1

INPUT FORECAST WITH INFLATION
BY INDUSTRY MODE

SEGMENTATION	1989 ($M)	1990 ($M)	1991 ($M)	1992 ($M)	1993 ($M)	1994 ($M)	1995 ($M)	1996 ($M)	CAGR 90-95
INSURANCE									
PROFESSIONAL SERVICES	1268	1434	1618	1842	2118	2444	2820	3228	14%
SYSTEMS OPERATIONS (PS)	106	117	128	142	157	172	189	208	10%
SYSTEMS OPERATIONS (PROC)	622	684	753	820	894	984	1111	1224	10%
SYSTEMS INTEGRATION	90	109	133	169	213	267	344	433	26%
SOFTWARE DEVELOPMENT	44	55	65	82	107	134	165	206	25%
DESIGN/INTEGRATION	19	23	28	37	46	56	75	95	27%
PROJECT MGMT/CONSULTING	19	21	28	36	44	55	74	95	29%
EDUCATION/TRAINING	4	5	6	7	8	11	15	19	25%
OPERATIONS/MAINTENANCE	4	5	6	7	8	11	15	19	25%
TOTAL	2086	2344	2632	2973	3382	3867	4464	5094	14%
MEDICAL									
PROFESSIONAL SERVICES	229	254	282	315	351	394	443	495	12%
SYSTEMS OPERATIONS (PS)	45	50	57	64	72	82	92	104	13%
SYSTEMS OPERATIONS (PROC)	560	570	673	794	937	1105	1304	1539	18%
SYSTEMS INTEGRATION	109	117	132	149	166	188	220	248	13%
SOFTWARE DEVELOPMENT	59	64	72	80	91	102	117	131	12%
DESIGN/INTEGRATION	18	19	22	25	28	31	39	45	15%
PROJECT MGMT/CONSULTING	20	22	24	28	31	35	42	48	14%
EDUCATION/TRAINING	6	6	7	8	8	10	11	12	13%
OPERATIONS/MAINTENANCE	6	6	7	8	8	10	11	12	13%
TOTAL	943	991	1143	1322	1526	1769	2059	2386	16%

TABLE 1

INPUT FORECAST WITH INFLATION
BY INDUSTRY MODE

SEGMENTATION	1989 ($M)	1990 ($M)	1991 ($M)	1992 ($M)	1993 ($M)	1994 ($M)	1995 ($M)	1996 ($M)	CAGR 90-95
EDUCATION									
PROFESSIONAL SERVICES	67	76	86	97	109	123	139	157	13%
SYSTEMS OPERATIONS (PS)	18	20	21	23	24	26	31	34	9%
SYSTEMS OPERATIONS (PROC)	68	75	82	91	100	112	134	150	12%
SYSTEMS INTEGRATION	42	46	53	63	76	93	110	131	19%
SOFTWARE DEVELOPMENT	22	25	29	33	40	50	59	70	19%
DESIGN/INTEGRATION	8	9	10	12	15	18	22	26	20%
PROJECT MGMT/CONSULTING	8	8	10	12	15	17	21	25	21%
EDUCATION/TRAINING	2	2	2	3	3	4	4	5	15%
OPERATIONS/MAINTENANCE	2	2	2	3	3	4	4	5	15%
TOTAL	195	217	242	274	309	354	414	472	14%
BUSINESS SERVICES									
PROFESSIONAL SERVICES	135	151	169	189	212	238	267	299	12%
SYSTEMS OPERATIONS (PS)	9	10	11	11	12	14	15	16	8%
SYSTEMS OPERATIONS (PROC)	6	7	8	9	10	12	14	16	15%
SYSTEMS INTEGRATION	21	27	34	45	55	72	95	122	29%
SOFTWARE DEVELOPMENT	10	13	16	21	27	34	44	56	28%
DESIGN/INTEGRATION	5	6	8	10	12	16	21	27	28%
PROJECT MGMT/CONSULTING	4	6	8	10	12	16	22	29	30%
EDUCATION/TRAINING	1	1	1	2	2	3	4	5	32%
OPERATIONS/MAINTENANCE	1	1	1	2	2	3	4	5	32%
TOTAL	171	195	222	254	289	336	391	454	15%

TABLE 1

INPUT FORECAST WITH INFLATION
BY INDUSTRY MODE

SEGMENTATION	1989 ($M)	1990 ($M)	1991 ($M)	1992 ($M)	1993 ($M)	1994 ($M)	1995 ($M)	1996 ($M)	CAGR 90-95
CONSUMER SERVICES									
PROFESSIONAL SERVICES	125	133	142	152	164	177	192	207	8%
SYSTEMS OPERATIONS (PS)	1	1	1	2	2	2	2	2	15%
SYSTEMS OPERATIONS (PROC)	19	24	31	38	47	60	75	94	26%
SYSTEMS INTEGRATION	38	43	49	61	74	95	125	153	24%
SOFTWARE DEVELOPMENT	18	21	24	29	35	45	58	70	20%
DESIGN/INTEGRATION	8	9	11	13	16	21	28	35	25%
PROJECT MGMT/CONSULTING	8	9	10	13	17	21	29	37	26%
EDUCATION/TRAINING	2	2	2	3	3	4	5	6	20%
OPERATIONS/MAINTENANCE	2	2	2	3	3	4	5	6	20%
TOTAL	183	201	223	253	287	334	394	457	14%
FEDERAL GOVERNMENT									
PROFESSIONAL SERVICES	2031	2136	2221	2308	2402	2512	2629	2740	4%
SYSTEMS OPERATIONS (PS)	860	979	1097	1218	1339	1460	1591	1753	10%
SYSTEMS OPERATIONS (PROC)	249	292	338	393	444	470	499	555	11%
SYSTEMS INTEGRATION	1166	1346	1528	1735	1970	2237	2541	2886	14%
SOFTWARE DEVELOPMENT	547	698	791	898	1019	1156	1311	1488	13%
DESIGN/INTEGRATION	253	224	253	286	323	365	413	466	13%
PROJECT MGMT/CONSULTING	280	325	370	422	481	548	624	711	14%
EDUCATION/TRAINING	48	49	50	51	52	53	54	55	2%
OPERATIONS/MAINTENANCE	39	50	64	78	95	115	139	166	23%
TOTAL	4306	4753	5184	5654	6155	6679	7260	7935	9%

TABLE 1

INPUT FORECAST WITH INFLATION
BY INDUSTRY MODE

SEGMENTATION	1989 ($M)	1990 ($M)	1991 ($M)	1992 ($M)	1993 ($M)	1994 ($M)	1995 ($M)	1996 ($M)	CAGR 90-95
STATE & LOCAL GOVERNMENT									
PROFESSIONAL SERVICES	2074	2362	2700	3088	3532	4041	4625	5290	14%
SYSTEMS OPERATIONS (PS)	230	265	304	353	409	475	579	677	17%
SYSTEMS OPERATIONS (PROC)	567	692	844	1030	1266	1558	1916	2349	23%
SYSTEMS INTEGRATION	244	300	356	424	523	667	859	1060	23%
SOFTWARE DEVELOPMENT	126	155	186	218	265	339	434	533	23%
DESIGN/INTEGRATION	41	50	59	71	89	114	148	184	24%
PROJECT MGMT/CONSULTING	63	77	89	109	137	176	229	285	24%
EDUCATION/TRAINING	7	9	11	13	16	19	24	29	22%
OPERATIONS/MAINTENANCE	7	9	11	13	16	19	24	29	22%
TOTAL	3115	3619	4204	4895	5730	6741	7979	9376	17%
MISCELLANEOUS INDUSTRIES									
PROFESSIONAL SERVICES	90	104	116	130	146	164	185	208	12%
SYSTEMS OPERATIONS (PS)	0	0	0	0	0	0	0	0	NA
SYSTEMS OPERATIONS (PROC)	0	0	0	0	0	0	0	0	NA
SYSTEMS INTEGRATION	1	1	2	4	6	9	14	21	70%
SOFTWARE DEVELOPMENT	1	1	1	2	3	5	7	10	48%
DESIGN/INTEGRATION	0	0	1	1	1	2	3	4	49%
PROJECT MGMT/CONSULTING	0	0	0	1	2	2	4	6	48%
EDUCATION/TRAINING	*	*	*	*	*	*	*	*	31%
OPERATIONS/MAINTENANCE	*	*	*	*	*	*	*	*	31%
TOTAL	91	105	118	134	152	173	199	228	14%

TABLE 1

INPUT FORECAST WITH INFLATION
BY INDUSTRY MODE

SEGMENTATION	1989 ($M)	1990 ($M)	1991 ($M)	1992 ($M)	1993 ($M)	1994 ($M)	1995 ($M)	1996 ($M)	CAGR 90-95
GRAND TOTAL									
PROFESSIONAL SERVICES	15184	16764	18465	20495	22975	25987	29527	33141	12%
SYSTEMS OPERATIONS (PS)	1631	1846	2081	2343	2623	2930	3310	3726	12%
SYSTEMS OPERATIONS (PROC)	4361	5013	5855	6832	7970	9305	11145	13127	17%
SYSTEMS INTEGRATION	2897	3436	4031	4736	5641	6842	8384	10092	20%
SOFTWARE DEVELOPMENT	1433	1776	2081	2425	2878	3491	4257	5103	19%
DESIGN/INTEGRATION	590	627	737	872	1052	1284	1590	1930	20%
PROJECT MGMT/CONSULTING	650	768	894	1065	1277	1546	1906	2303	20%
EDUCATION/TRAINING	120	136	157	179	201	237	281	332	16%
OPERATIONS/MAINTENANCE	105	129	161	195	233	284	350	424	22%
TOTAL	24071	27057	30429	34402	39204	45060	52361	60080	14%

TABLE 2

INPUT FORECAST WITHOUT INFLATION
BY INDUSTRY MODE (BASE 1989 DOLLARS)

SEGMENTATION	1989 ($M)	1990 ($M)	1991 ($M)	1992 ($M)	1993 ($M)	1994 ($M)	1995 ($M)	1996 ($M)	CAGR 90-95
	1.0000	1.0440	1.0460	1.0410	1.0400	1.0400	1.0390	1.0390	(%)
INFLATION FACTORS	1.0000	1.0440	1.0920	1.1368	1.1823	1.2296	1.2775	1.3273	
DISCRETE MANUFACTURING									
PROFESSIONAL SERVICES	3754	3988	4201	4481	4862	5345	5927	6430	8%
SYSTEMS OPERATIONS (PS)	56	65	71	78	85	94	106	118	10%
SYSTEMS OPERATIONS (PROC)	331	396	473	564	667	789	934	1111	19%
SYSTEMS INTEGRATION	415	513	613	718	852	1033	1265	1518	20%
SOFTWARE DEVELOPMENT	207	260	315	364	425	518	637	764	20%
DESIGN/INTEGRATION	90	109	126	149	180	220	269	323	20%
PROJECT MGMT/CONSULTING	86	104	122	145	175	213	260	313	20%
EDUCATION/TRAINING	16	20	25	30	36	41	49	59	20%
OPERATIONS/MAINTENANCE	16	20	25	30	36	41	49	59	20%
TOTAL	4556	4962	5359	5841	6466	7261	8232	9177	11%
PROCESS MANUFACTURING									
PROFESSIONAL SERVICES	1749	1894	2011	2166	2356	2607	2919	3190	9%
SYSTEMS OPERATIONS (PS)	58	64	70	77	85	94	106	117	10%
SYSTEMS OPERATIONS (PROC)	388	435	483	537	594	663	766	859	12%
SYSTEMS INTEGRATION	61	71	82	91	107	129	152	177	16%
SOFTWARE DEVELOPMENT	34	39	44	50	58	70	82	95	16%
DESIGN/INTEGRATION	10	11	14	16	19	22	26	30	18%
PROJECT MGMT/CONSULTING	11	12	15	17	20	24	28	33	18%
EDUCATION/TRAINING	3	4	5	4	5	7	8	9	15%
OPERATIONS/MAINTENANCE	3	4	5	4	5	7	8	9	15%
TOTAL	2256	2464	2645	2871	3141	3492	3942	4343	10%

TABLE 2

INPUT FORECAST WITHOUT INFLATION
BY INDUSTRY MODE (BASE 1989 DOLLARS)

SEGMENTATION	1989 ($M)	1990 ($M)	1991 ($M)	1992 ($M)	1993 ($M)	1994 ($M)	1995 ($M)	1996 ($M)	CAGR 90-95
INFLATION FACTORS	1.0000	1.0440	1.0460	1.0410	1.0400	1.0400	1.0390	1.0390	(%)
	1.0000	1.0440	1.0920	1.1368	1.1823	1.2296	1.2775	1.3273	
TRANSPORTATION									
PROFESSIONAL SERVICES	188	204	221	239	261	284	309	337	9%
SYSTEMS OPERATIONS (PS)	2	2	3	3	3	3	4	5	15%
SYSTEMS OPERATIONS (PROC)	43	47	53	58	63	71	79	88	11%
SYSTEMS INTEGRATION	83	86	90	96	112	134	171	196	15%
SOFTWARE DEVELOPMENT	43	46	46	48	57	68	85	97	13%
DESIGN/INTEGRATION	15	15	16	18	22	27	34	39	17%
PROJECT MGMT/CONSULTING	18	18	20	22	26	31	41	48	17%
EDUCATION/TRAINING	4	4	5	4	4	5	6	7	10%
OPERATIONS/MAINTENANCE	3	3	3	3	3	3	5	5	10%
TOTAL	316	339	366	396	440	492	563	625	11%
UTILITIES									
PROFESSIONAL SERVICES	221	223	233	247	264	282	302	322	6%
SYSTEMS OPERATIONS (PS)	5	6	5	6	7	8	9	9	8%
SYSTEMS OPERATIONS (PROC)	35	37	40	44	49	54	62	69	11%
SYSTEMS INTEGRATION	197	209	223	241	266	297	333	366	10%
SOFTWARE DEVELOPMENT	98	104	110	120	131	146	165	181	10%
DESIGN/INTEGRATION	35	37	40	43	48	54	60	66	10%
PROJECT MGMT/CONSULTING	45	48	51	56	62	70	78	87	10%
EDUCATION/TRAINING	11	11	13	13	14	16	17	19	8%
OPERATIONS/MAINTENANCE	8	8	8	9	10	11	12	13	9%
TOTAL	458	475	501	538	585	641	705	766	8%

TABLE 2

INPUT FORECAST WITHOUT INFLATION
BY INDUSTRY MODE (BASE 1989 DOLLARS)

SEGMENTATION	1989 ($M)	1990 ($M)	1991 ($M)	1992 ($M)	1993 ($M)	1994 ($M)	1995 ($M)	1996 ($M)	CAGR 90-95
INFLATION FACTORS	1.0000	1.0440	1.0460	1.0410	1.0400	1.0400	1.0390	1.0390	(%)
	1.0000	1.0440	1.0920	1.1368	1.1823	1.2296	1.2775	1.3273	
TELECOMMUNICATIONS									
PROFESSIONAL SERVICES	825	910	996	1091	1209	1347	1508	1672	11%
SYSTEMS OPERATIONS (PS)	16	18	21	23	25	28	31	35	11%
SYSTEMS OPERATIONS (PROC)	40	43	48	53	59	66	76	85	12%
SYSTEMS INTEGRATION	93	107	120	132	152	186	228	265	16%
SOFTWARE DEVELOPMENT	54	61	70	76	86	107	130	151	16%
DESIGN/INTEGRATION	16	18	21	23	27	33	41	48	17%
PROJECT MGMT/CONSULTING	19	23	23	26	31	38	47	54	15%
EDUCATION/TRAINING	3	4	5	5	6	7	8	9	15%
OPERATIONS/MAINTENANCE	1	1	2	2	2	2	2	3	20%
TOTAL	974	1079	1185	1298	1446	1627	1843	2058	11%
RETAIL DISTRIBUTION									
PROFESSIONAL SERVICES	185	198	204	213	224	239	257	271	5%
SYSTEMS OPERATIONS (PS)	5	6	5	6	7	7	8	8	6%
SYSTEMS OPERATIONS (PROC)	57	68	81	96	115	138	166	199	20%
SYSTEMS INTEGRATION	111	135	164	199	243	302	381	470	23%
SOFTWARE DEVELOPMENT	58	72	87	105	128	157	200	245	23%
DESIGN/INTEGRATION	23	27	33	40	49	63	79	98	24%
PROJECT MGMT/CONSULTING	22	27	31	39	47	59	76	94	23%
EDUCATION/TRAINING	4	5	6	8	9	11	13	16	23%
OPERATIONS/MAINTENANCE	4	5	6	8	9	11	13	16	23%
TOTAL	358	407	454	514	589	686	812	948	15%

TABLE 2

INPUT FORECAST WITHOUT INFLATION
BY INDUSTRY MODE (BASE 1989 DOLLARS)

SEGMENTATION	1989 ($M)	1990 ($M)	1991 ($M)	1992 ($M)	1993 ($M)	1994 ($M)	1995 ($M)	1996 ($M)	CAGR 90-95
INFLATION FACTORS	1.0000	1.0440	1.0460	1.0410	1.0400	1.0400	1.0390	1.0390	(%)
	1.0000	1.0440	1.0920	1.1368	1.1823	1.2296	1.2775	1.3273	
WHOLESALE DISTRIBUTION									
PROFESSIONAL SERVICES	293	313	327	340	358	378	398	419	5%
SYSTEMS OPERATIONS (PS)	20	22	24	26	28	31	35	39	10%
SYSTEMS OPERATIONS (PROC)	58	66	75	86	99	115	133	153	15%
SYSTEMS INTEGRATION	73	79	83	91	99	111	128	142	10%
SOFTWARE DEVELOPMENT	40	42	45	48	53	60	68	75	10%
DESIGN/INTEGRATION	14	14	16	17	19	21	25	28	12%
PROJECT MGMT/CONSULTING	13	14	16	17	19	20	24	27	11%
EDUCATION/TRAINING	3	4	4	4	4	5	5	6	7%
OPERATIONS/MAINTENANCE	3	4	4	4	4	5	5	6	7%
TOTAL	444	480	509	543	584	635	695	753	8%
BANKING AND FINANCE									
PROFESSIONAL SERVICES	1950	1958	2000	2108	2259	2444	2647	2817	6%
SYSTEMS OPERATIONS (PS)	200	204	224	248	274	303	335	371	10%
SYSTEMS OPERATIONS (PROC)	1318	1465	1610	1779	1967	2175	2553	2860	12%
SYSTEMS INTEGRATION	153	186	223	267	332	422	533	660	23%
SOFTWARE DEVELOPMENT	72	88	105	123	153	196	247	304	23%
DESIGN/INTEGRATION	35	42	49	62	78	98	124	155	24%
PROJECT MGMT/CONSULTING	34	40	48	60	74	94	120	149	24%
EDUCATION/TRAINING	6	8	10	11	14	17	21	26	22%
OPERATIONS/MAINTENANCE	6	8	10	11	14	17	21	26	22%
TOTAL	3621	3812	4057	4402	4832	5344	6068	6707	10%

TABLE 2

INPUT FORECAST WITHOUT INFLATION
BY INDUSTRY MODE (BASE 1989 DOLLARS)

SEGMENTATION	1989 ($M)	1990 ($M)	1991 ($M)	1992 ($M)	1993 ($M)	1994 ($M)	1995 ($M)	1996 ($M)	CAGR 90-95
INFLATION FACTORS	1.0000	1.0440	1.0460	1.0410	1.0400	1.0400	1.0390	1.0390	(%)
	1.0000	1.0440	1.0920	1.1368	1.1823	1.2296	1.2775	1.3273	
INSURANCE									
PROFESSIONAL SERVICES	1268	1374	1482	1620	1791	1988	2207	2432	10%
SYSTEMS OPERATIONS (PS)	106	112	117	125	133	140	148	157	6%
SYSTEMS OPERATIONS (PROC)	622	655	690	721	756	800	870	922	6%
SYSTEMS INTEGRATION	90	104	122	149	180	217	269	326	21%
SOFTWARE DEVELOPMENT	44	53	60	72	91	109	129	155	20%
DESIGN/INTEGRATION	19	22	26	33	39	46	59	72	22%
PROJECT MGMT/CONSULTING	19	20	26	32	37	45	58	72	24%
EDUCATION/TRAINING	4	5	5	6	7	9	12	14	20%
OPERATIONS/MAINTENANCE	4	5	5	6	7	9	12	14	20%
TOTAL	2086	2245	2410	2615	2861	3145	3494	3838	9%
MEDICAL									
PROFESSIONAL SERVICES	229	243	258	277	297	320	347	373	7%
SYSTEMS OPERATIONS (PS)	45	48	52	56	61	66	72	78	9%
SYSTEMS OPERATIONS (PROC)	560	546	616	698	792	899	1021	1159	13%
SYSTEMS INTEGRATION	109	112	121	131	140	153	172	187	9%
SOFTWARE DEVELOPMENT	59	61	66	70	77	83	92	98	8%
DESIGN/INTEGRATION	18	18	20	22	24	25	31	34	11%
PROJECT MGMT/CONSULTING	20	21	22	25	26	28	33	36	9%
EDUCATION/TRAINING	6	6	6	7	7	8	9	9	8%
OPERATIONS/MAINTENANCE	6	6	6	7	7	8	9	9	8%
TOTAL	943	949	1047	1162	1290	1438	1612	1798	11%

TABLE 2

INPUT FORECAST WITHOUT INFLATION
BY INDUSTRY MODE (BASE 1989 DOLLARS)

SEGMENTATION	1989 ($M)	1990 ($M)	1991 ($M)	1992 ($M)	1993 ($M)	1994 ($M)	1995 ($M)	1996 ($M)	CAGR 90-95
INFLATION FACTORS	1.0000	1.0440	1.0460	1.0410	1.0400	1.0400	1.0390	1.0390	(%)
	1.0000	1.0440	1.0920	1.1368	1.1823	1.2296	1.2775	1.3273	
EDUCATION									
PROFESSIONAL SERVICES	67	73	79	85	92	100	109	118	8%
SYSTEMS OPERATIONS (PS)	18	19	19	20	20	21	24	25	5%
SYSTEMS OPERATIONS (PROC)	68	72	75	80	85	91	105	113	8%
SYSTEMS INTEGRATION	42	44	49	55	64	76	86	99	14%
SOFTWARE DEVELOPMENT	22	24	27	29	34	41	46	53	14%
DESIGN/INTEGRATION	8	9	9	11	13	15	17	20	15%
PROJECT MGMT/CONSULTING	8	8	9	11	13	14	16	19	16%
EDUCATION/TRAINING	2	2	2	3	3	3	3	3	10%
OPERATIONS/MAINTENANCE	2	2	2	3	3	3	3	3	10%
TOTAL	195	208	222	241	261	288	324	356	9%
BUSINESS SERVICES									
PROFESSIONAL SERVICES	135	145	155	166	179	194	209	225	8%
SYSTEMS OPERATIONS (PS)	9	10	10	10	10	11	12	12	4%
SYSTEMS OPERATIONS (PROC)	6	7	7	8	8	10	11	12	10%
SYSTEMS INTEGRATION	21	26	31	40	47	59	74	92	24%
SOFTWARE DEVELOPMENT	10	12	15	18	23	28	34	42	23%
DESIGN/INTEGRATION	5	6	7	9	10	13	16	20	23%
PROJECT MGMT/CONSULTING	4	6	7	9	10	13	17	21	25%
EDUCATION/TRAINING	1	1	1	2	2	2	3	4	27%
OPERATIONS/MAINTENANCE	1	1	1	2	2	2	3	4	27%
TOTAL	171	187	203	223	244	273	306	342	10%

TABLE 2

INPUT FORECAST WITHOUT INFLATION
BY INDUSTRY MODE (BASE 1989 DOLLARS)

SEGMENTATION	1989 ($M)	1990 ($M)	1991 ($M)	1992 ($M)	1993 ($M)	1994 ($M)	1995 ($M)	1996 ($M)	CAGR 90-95
INFLATION FACTORS	1.0000	1.0440	1.0460	1.0410	1.0400	1.0400	1.0390	1.0390	(%)
	1.0000	1.0440	1.0920	1.1368	1.1823	1.2296	1.2775	1.3273	
CONSUMER SERVICES									
PROFESSIONAL SERVICES	125	127	130	134	139	144	150	156	3%
SYSTEMS OPERATIONS (PS)	1	1	1	2	2	2	2	2	10%
SYSTEMS OPERATIONS (PROC)	19	23	28	33	40	49	59	71	21%
SYSTEMS INTEGRATION	38	41	45	54	63	77	98	116	19%
SOFTWARE DEVELOPMENT	18	20	22	26	30	37	45	52	18%
DESIGN/INTEGRATION	8	9	10	11	14	17	22	26	21%
PROJECT MGMT/CONSULTING	8	9	9	11	14	17	23	28	21%
EDUCATION/TRAINING	2	2	2	3	3	3	4	5	15%
OPERATIONS/MAINTENANCE	2	2	2	3	3	3	4	5	15%
TOTAL	183	193	204	223	243	272	308	344	10%
FEDERAL GOVERNMENT									
PROFESSIONAL SERVICES	2031	2046	2034	2030	2032	2043	2058	2065	0%
SYSTEMS OPERATIONS (PS)	860	938	1005	1071	1133	1187	1245	1321	6%
SYSTEMS OPERATIONS (PROC)	249	280	310	346	376	382	391	418	7%
SYSTEMS INTEGRATION	1166	1289	1400	1526	1666	1819	1989	2174	9%
SOFTWARE DEVELOPMENT	547	669	724	790	862	940	1026	1121	9%
DESIGN/INTEGRATION	253	215	232	252	273	297	323	351	9%
PROJECT MGMT/CONSULTING	280	311	339	371	407	445	488	536	9%
EDUCATION/TRAINING	48	47	46	45	44	43	42	41	-2%
OPERATIONS/MAINTENANCE	39	48	59	69	80	94	109	125	18%
TOTAL	4306	4553	4747	4974	5206	5432	5683	5978	5%

TABLE 2

INPUT FORECAST WITHOUT INFLATION
BY INDUSTRY MODE (BASE 1989 DOLLARS)

SEGMENTATION	1989 ($M)	1990 ($M)	1991 ($M)	1992 ($M)	1993 ($M)	1994 ($M)	1995 ($M)	1996 ($M)	CAGR 90-95
INFLATION FACTORS	1.0000	1.0440	1.0460	1.0410	1.0400	1.0400	1.0390	1.0390	(%)
	1.0000	1.0440	1.0920	1.1368	1.1823	1.2296	1.2775	1.3273	
STATE & LOCAL GOVERNMENT									
PROFESSIONAL SERVICES	2074	2262	2472	2716	2987	3287	3620	3986	10%
SYSTEMS OPERATIONS (PS)	230	254	278	311	346	386	453	510	12%
SYSTEMS OPERATIONS (PROC)	567	663	773	906	1071	1267	1500	1770	18%
SYSTEMS INTEGRATION	244	287	326	373	442	542	672	799	19%
SOFTWARE DEVELOPMENT	126	148	170	192	224	276	340	402	18%
DESIGN/INTEGRATION	41	48	54	62	75	93	116	139	19%
PROJECT MGMT/CONSULTING	63	74	82	96	116	143	179	215	19%
EDUCATION/TRAINING	7	9	10	11	14	15	19	22	17%
OPERATIONS/MAINTENANCE	7	9	10	11	14	15	19	22	17%
TOTAL	3115	3466	3850	4306	4847	5482	6246	7064	12%
MISCELLANEOUS INDUSTRIES									
PROFESSIONAL SERVICES	90	100	106	114	123	133	145	156	8%
SYSTEMS OPERATIONS (PS)	0	0	0	0	0	0	0	0	ERR
SYSTEMS OPERATIONS (PROC)	0	0	0	0	0	0	0	0	ERR
SYSTEMS INTEGRATION	1	1	2	4	5	7	11	16	63%
SOFTWARE DEVELOPMENT	1	1	1	2	3	4	5	8	42%
DESIGN/INTEGRATION	0	0	1	1	1	2	2	3	ERR
PROJECT MGMT/CONSULTING	0	0	0	1	2	2	3	4	ERR
EDUCATION/TRAINING	0	0	0	0	0	0	0	0	ERR
OPERATIONS/MAINTENANCE	0	0	0	0	0	0	0	0	ERR
TOTAL	91	101	108	118	129	141	156	172	9%

TABLE 2

INPUT FORECAST WITHOUT INFLATION
BY INDUSTRY MODE (BASE 1989 DOLLARS)

SEGMENTATION	1989 ($M)	1990 ($M)	1991 ($M)	1992 ($M)	1993 ($M)	1994 ($M)	1995 ($M)	1996 ($M)	CAGR 90-95
INFLATION FACTORS	1.0000	1.0440	1.0460	1.0410	1.0400	1.0400	1.0390	1.0390	(%)
	1.0000	1.0440	1.0920	1.1368	1.1823	1.2296	1.2775	1.3273	
GRAND TOTAL									
PROFESSIONAL SERVICES	15184	16057	16909	18029	19433	21135	23113	24968	8%
SYSTEMS OPERATIONS (PS)	1631	1768	1906	2061	2219	2383	2591	2807	8%
SYSTEMS OPERATIONS (PROC)	4361	4802	5361	6010	6741	7568	8724	9890	13%
SYSTEMS INTEGRATION	2897	3291	3691	4166	4771	5564	6563	7603	15%
SOFTWARE DEVELOPMENT	1433	1701	1906	2133	2434	2839	3332	3844	14%
DESIGN/INTEGRATION	590	601	675	767	890	1044	1244	1454	16%
PROJECT MGMT/CONSULTING	650	736	819	937	1080	1257	1492	1735	15%
EDUCATION/TRAINING	120	130	144	157	170	193	220	250	11%
OPERATIONS/MAINTENANCE	105	124	147	172	197	231	274	320	17%
TOTAL	24073	25919	27867	30265	33164	36650	40990	45269	10%

TABLE 3

IBM FORECAST WITHOUT INFLATION
BY INDUSTRY MODE

IBM SEGMENTATION	1989 ($M)	1990 ($M)	1991 ($M)	1992 ($M)	1993 ($M)	1994 ($M)	1995 ($M)	1996 ($M)	'90-'9 CAGR
MANUFACTURING									
PROFESSIONAL SERVICES	1691	1800	1898	2025	2197	2413	2672	2898	8%
SYSTEMS OPERATIONS (PS)	25	29	31	34	37	41	46	51	10%
SYSTEMS OPERATIONS (PROC)	141	169	202	240	284	336	398	473	19%
SYSTEMS INTEGRATION	179	222	265	312	371	451	555	668	20%
SOFTWARE DEVELOPMENT	90	112	136	158	185	227	279	336	20%
DESIGN/INTEGRATION	39	47	55	65	78	96	118	142	20%
PROJECT MGMT/CONSULTING	37	45	52	63	77	93	115	139	21%
EDUCATION/TRAINING	7	9	11	13	15	18	21	26	20%
OPERATIONS/MAINTENANCE	7	9	11	13	15	18	21	26	20%
TOTAL	2036	2219	2396	2612	2890	3241	3671	4091	11%
AUTOMOTIVE									
PROFESSIONAL SERVICES	270	287	302	322	350	385	427	463	8%
SYSTEMS OPERATIONS (PS)	4	5	5	6	6	7	8	9	10%
SYSTEMS OPERATIONS (PROC)	25	29	35	42	49	58	68	81	18%
SYSTEMS INTEGRATION	29	36	43	51	60	73	89	107	20%
SOFTWARE DEVELOPMENT	15	18	22	26	30	37	45	54	20%
DESIGN/INTEGRATION	6	8	9	10	13	16	19	23	20%
PROJECT MGMT/CONSULTING	6	7	9	10	12	15	18	22	20%
EDUCATION/TRAINING	1	1	2	2	3	3	3	4	20%
OPERATIONS/MAINTENANCE	1	1	2	2	3	3	3	4	20%
TOTAL	328	357	386	420	465	522	592	660	11%

TABLE 3

IBM FORECAST WITHOUT INFLATION
BY INDUSTRY MODE

IBM SEGMENTATION	1989 ($M)	1990 ($M)	1991 ($M)	1992 ($M)	1993 ($M)	1994 ($M)	1995 ($M)	1996 ($M)	'90-'19 CAGR
AEROSPACE									
PROFESSIONAL SERVICES	375	399	420	448	486	535	593	643	8%
SYSTEMS OPERATIONS (PS)	6	7	7	8	9	9	11	12	10%
SYSTEMS OPERATIONS (PROC)	33	40	47	56	67	79	93	111	19%
SYSTEMS INTEGRATION	42	51	61	72	85	103	126	152	20%
SOFTWARE DEVELOPMENT	21	26	32	36	43	52	64	76	20%
DESIGN/INTEGRATION	9	11	13	15	18	22	27	32	20%
PROJECT MGMT/CONSULTING	9	10	12	15	18	21	26	31	20%
EDUCATION/TRAINING	2	2	2	3	4	4	5	6	20%
OPERATIONS/MAINTENANCE	2	2	2	3	4	4	5	6	20%
TOTAL	456	496	536	584	647	726	823	918	11%
ELECTRICAL MACHINERY									
PROFESSIONAL SERVICES	713	758	798	851	924	1016	1126	1222	8%
SYSTEMS OPERATIONS (PS)	11	12	14	15	16	18	20	22	10%
SYSTEMS OPERATIONS (PROC)	63	75	90	107	127	150	177	211	19%
SYSTEMS INTEGRATION	79	98	116	136	162	196	240	288	20%
SOFTWARE DEVELOPMENT	39	49	60	69	81	98	121	145	20%
DESIGN/INTEGRATION	17	21	24	28	34	42	51	61	20%
PROJECT MGMT/CONSULTING	16	20	23	28	33	40	49	59	20%
EDUCATION/TRAINING	3	4	5	6	7	8	9	11	20%
OPERATIONS/MAINTENANCE	3	4	5	6	7	8	9	11	20%
TOTAL	866	943	1018	1110	1229	1380	1564	1744	11%

TABLE 3

IBM FORECAST WITHOUT INFLATION
BY INDUSTRY MODE

IBM SEGMENTATION	1989 ($M)	1990 ($M)	1991 ($M)	1992 ($M)	1993 ($M)	1994 ($M)	1995 ($M)	1996 ($M)	'90-'19 CAGR
PROCESS									
PROFESSIONAL SERVICES	968	1047	1112	1197	1302	1441	1613	1762	9%
SYSTEMS OPERATIONS (PS)	32	35	38	42	46	51	58	64	10%
SYSTEMS OPERATIONS (PROC)	212	237	263	294	325	363	419	470	12%
SYSTEMS INTEGRATION	35	41	47	53	63	75	89	104	17%
SOFTWARE DEVELOPMENT	19	23	25	29	34	41	48	56	16%
DESIGN/INTEGRATION	6	7	8	9	11	13	15	18	18%
PROJECT MGMT/CONSULTING	6	7	9	10	12	14	17	20	18%
EDUCATION/TRAINING	2	2	3	3	3	4	4	5	16%
OPERATIONS/MAINTENANCE	2	2	3	3	3	4	4	5	16%
TOTAL	1246	1361	1461	1586	1736	1930	2178	2401	10%
CONSUMER GOODS									
PROFESSIONAL SERVICES	232	251	267	287	312	346	387	422	9%
SYSTEMS OPERATIONS (PS)	8	8	9	10	11	12	14	15	10%
SYSTEMS OPERATIONS (PROC)	50	57	63	70	77	86	100	112	12%
SYSTEMS INTEGRATION	8	9	11	12	14	17	20	24	17%
SOFTWARE DEVELOPMENT	4	5	6	7	8	9	11	13	16%
DESIGN/INTEGRATION	1	1	2	2	2	3	3	4	18%
PROJECT MGMT/CONSULTING	1	2	2	2	3	3	4	5	19%
EDUCATION/TRAINING	0	0	1	1	1	1	1	1	15%
OPERATIONS/MAINTENANCE	0	0	1	1	1	1	1	1	15%
TOTAL	298	325	349	379	415	461	520	573	10%

TABLE 3

IBM FORECAST WITHOUT INFLATION
BY INDUSTRY MODE

IBM SEGMENTATION	1989 ($M)	1990 ($M)	1991 ($M)	1992 ($M)	1993 ($M)	1994 ($M)	1995 ($M)	1996 ($M)	'90-'9 CAGR
CHEMICALS/PHARM.									
PROFESSIONAL SERVICES	192	208	221	238	259	287	321	351	9%
SYSTEMS OPERATIONS (PS)	6	7	8	8	9	10	12	13	10%
SYSTEMS OPERATIONS (PROC)	43	48	53	59	65	73	84	94	12%
SYSTEMS INTEGRATION	7	8	9	10	12	14	17	19	16%
SOFTWARE DEVELOPMENT	4	4	5	6	6	8	9	11	16%
DESIGN/INTEGRATION	1	1	2	2	2	2	3	3	18%
PROJECT MGMT/CONSULTING	1	1	2	2	2	3	3	4	18%
EDUCATION/TRAINING	0	0	1	0	1	1	1	1	15%
OPERATIONS/MAINTENANCE	0	0	1	0	1	1	1	1	15%
TOTAL	248	271	291	316	346	384	434	478	10%
PETROLEUM									
PROFESSIONAL SERVICES	375	403	427	459	498	549	611	665	9%
SYSTEMS OPERATIONS (PS)	12	14	15	16	18	20	22	25	10%
SYSTEMS OPERATIONS (PROC)	81	91	101	113	125	140	161	181	12%
SYSTEMS INTEGRATION	49	54	59	65	74	85	98	111	13%
SOFTWARE DEVELOPMENT	25	28	30	33	38	43	50	57	13%
DESIGN/INTEGRATION	9	9	11	12	13	15	18	20	13%
PROJECT MGMT/CONSULTING	10	11	12	14	16	18	21	24	13%
EDUCATION/TRAINING	3	3	3	3	4	4	5	5	11%
OPERATIONS/MAINTENANCE	2	2	2	3	3	3	4	4	12%
TOTAL	518	562	602	653	714	793	893	983	10%

TABLE 3

IBM FORECAST WITHOUT INFLATION
BY INDUSTRY MODE

IBM SEGMENTATION	1989 ($M)	1990 ($M)	1991 ($M)	1992 ($M)	1993 ($M)	1994 ($M)	1995 ($M)	1996 ($M)	'90-'9 CAGR
COMMUNICATIONS									
PROFESSIONAL SERVICES	660	728	797	873	967	1077	1207	1338	11%
SYSTEMS OPERATIONS (PS)	13	15	17	18	20	23	25	28	11%
SYSTEMS OPERATIONS (PROC)	32	34	38	42	47	53	61	68	12%
SYSTEMS INTEGRATION	74	86	96	106	122	149	182	212	16%
SOFTWARE DEVELOPMENT	43	49	56	61	69	85	104	121	16%
DESIGN/INTEGRATION	13	15	17	18	22	27	33	38	17%
PROJECT MGMT/CONSULTING	15	18	18	21	25	31	38	43	15%
EDUCATION/TRAINING	2	3	4	4	5	5	6	7	15%
OPERATIONS/MAINTENANCE	1	1	1	1	1	1	2	2	20%
TOTAL	779	863	948	1039	1156	1302	1475	1646	11%
COMPUTER SERVICES									
PROFESSIONAL SERVICES	23	24	26	28	30	32	35	38	8%
SYSTEMS OPERATIONS (PS)	2	2	2	2	2	2	3	3	4%
SYSTEMS OPERATIONS (PROC)	3	3	3	4	4	4	5	5	9%
SYSTEMS INTEGRATION	4	5	6	8	9	11	14	17	21%
SOFTWARE DEVELOPMENT	2	3	3	4	4	5	7	8	20%
DESIGN/INTEGRATION	1	1	1	2	2	2	3	4	22%
PROJECT MGMT/CONSULTING	1	1	1	2	2	2	3	4	23%
EDUCATION/TRAINING	0	0	0	0	0	0	1	1	23%
OPERATIONS/MAINTENANCE	0	0	0	0	0	0	1	1	23%
TOTAL	32	35	38	41	45	50	56	63	10%

TABLE 3

IBM FORECAST WITHOUT INFLATION
BY INDUSTRY MODE

IBM SEGMENTATION	1989 ($M)	1990 ($M)	1991 ($M)	1992 ($M)	1993 ($M)	1994 ($M)	1995 ($M)	1996 ($M)	'90-'19 CAGR
CONSULTANT									
PROFESSIONAL SERVICES	20	22	23	25	27	29	31	34	8%
SYSTEMS OPERATIONS (PS)	1	1	2	1	2	2	2	2	4%
SYSTEMS OPERATIONS (PROC)	1	1	1	1	1	1	2	2	10%
SYSTEMS INTEGRATION	3	4	5	6	7	9	11	14	24%
SOFTWARE DEVELOPMENT	2	2	2	3	3	4	5	6	23%
DESIGN/INTEGRATION	1	1	1	1	2	2	2	3	23%
PROJECT MGMT/CONSULTING	1	1	1	1	2	2	3	3	25%
EDUCATION/TRAINING	0	0	0	0	0	0	0	1	27%
OPERATIONS/MAINTENANCE	0	0	0	0	0	0	0	1	27%
TOTAL	26	28	30	34	37	41	46	51	10%
HEALTH									
PROFESSIONAL SERVICES	480	517	558	606	658	718	785	855	9%
SYSTEMS OPERATIONS (PS)	73	78	85	94	103	113	127	140	10%
SYSTEMS OPERATIONS (PROC)	628	626	709	807	921	1051	1201	1373	14%
SYSTEMS INTEGRATION	139	147	161	177	195	219	255	285	12%
SOFTWARE DEVELOPMENT	74	79	87	94	104	117	133	147	11%
DESIGN/INTEGRATION	23	24	27	30	33	37	45	51	13%
PROJECT MGMT/CONSULTING	28	30	32	36	40	46	55	62	13%
EDUCATION/TRAINING	7	7	8	8	8	10	11	12	10%
OPERATIONS/MAINTENANCE	7	7	8	8	8	10	11	12	10%
TOTAL	1320	1369	1513	1683	1877	2101	2367	2652	12%

TABLE 3

IBM FORECAST WITHOUT INFLATION
BY INDUSTRY MODE

IBM SEGMENTATION	1989 ($M)	1990 ($M)	1991 ($M)	1992 ($M)	1993 ($M)	1994 ($M)	1995 ($M)	1996 ($M)	'90-'9 CAGR
HIGHER EDUCATION									
PROFESSIONAL SERVICES	282	307	335	367	402	441	485	532	10%
SYSTEMS OPERATIONS (PS)	39	43	45	50	54	59	69	76	10%
SYSTEMS OPERATIONS (PROC)	115	129	143	162	183	210	247	283	14%
SYSTEMS INTEGRATION	60	66	74	85	99	119	142	166	16%
SOFTWARE DEVELOPMENT	31	35	40	44	51	62	74	86	16%
DESIGN/INTEGRATION	11	12	13	15	18	22	26	31	17%
PROJECT MGMT/CONSULTING	13	14	16	19	23	27	33	39	18%
EDUCATION/TRAINING	2	2	3	3	3	4	5	5	13%
OPERATIONS/MAINTENANCE	2	2	3	3	3	4	5	5	13%
TOTAL	496	545	598	663	739	829	942	1057	12%
MEDIA									
PROFESSIONAL SERVICES	631	675	718	769	837	921	1021	1112	9%
SYSTEMS OPERATIONS (PS)	10	12	13	14	16	17	19	21	10%
SYSTEMS OPERATIONS (PROC)	52	61	73	86	101	119	141	167	18%
SYSTEMS INTEGRATION	80	95	111	128	151	184	227	270	19%
SOFTWARE DEVELOPMENT	41	49	58	66	77	94	116	138	19%
DESIGN/INTEGRATION	16	19	22	26	31	38	47	57	20%
PROJECT MGMT/CONSULTING	17	20	22	26	32	38	48	57	19%
EDUCATION/TRAINING	3	4	4	5	6	7	9	10	18%
OPERATIONS/MAINTENANCE	3	3	4	5	5	6	8	9	19%
TOTAL	773	843	914	998	1105	1241	1407	1570	11%

TABLE 3

IBM FORECAST WITHOUT INFLATION
BY INDUSTRY MODE

IBM SEGMENTATION	1989 ($M)	1990 ($M)	1991 ($M)	1992 ($M)	1993 ($M)	1994 ($M)	1995 ($M)	1996 ($M)	'90-'19 CAGR
SCHOOLS									
PROFESSIONAL SERVICES	144	157	171	187	205	225	247	271	9%
SYSTEMS OPERATIONS (PS)	17	19	21	23	25	28	32	36	11%
SYSTEMS OPERATIONS (PROC)	49	55	63	72	83	97	114	132	16%
SYSTEMS INTEGRATION	25	28	32	36	43	52	63	74	17%
SOFTWARE DEVELOPMENT	13	15	17	19	22	27	32	37	17%
DESIGN/INTEGRATION	4	5	6	6	8	9	12	14	18%
PROJECT MGMT/CONSULTING	6	6	7	8	10	12	15	18	19%
EDUCATION/TRAINING	1	1	1	1	1	2	2	2	14%
OPERATIONS/MAINTENANCE	1	1	1	1	1	2	2	2	14%
TOTAL	235	260	286	318	356	401	456	513	12%
STATE/LOCAL GOV'T									
PROFESSIONAL SERVICES	1473	1606	1755	1929	2121	2333	2570	2830	10%
SYSTEMS OPERATIONS (PS)	163	180	198	220	246	274	322	362	12%
SYSTEMS OPERATIONS (PROC)	403	471	549	643	760	900	1065	1256	18%
SYSTEMS INTEGRATION	173	204	231	265	314	385	477	567	19%
SOFTWARE DEVELOPMENT	89	105	121	136	159	196	241	285	18%
DESIGN/INTEGRATION	29	34	38	44	53	66	82	98	19%
PROJECT MGMT/CONSULTING	45	52	58	68	82	102	127	152	19%
EDUCATION/TRAINING	5	6	7	8	10	11	13	16	17%
OPERATIONS/MAINTENANCE	5	6	7	8	10	11	13	16	17%
TOTAL	2212	2461	2733	3057	3441	3893	4434	5015	12%

TABLE 3

IBM FORECAST WITHOUT INFLATION
BY INDUSTRY MODE

IBM SEGMENTATION	1989 ($M)	1990 ($M)	1991 ($M)	1992 ($M)	1993 ($M)	1994 ($M)	1995 ($M)	1996 ($M)	'90-'9 CAGR
TRANSPORTATION									
PROFESSIONAL SERVICES	160	173	186	201	219	238	258	281	8%
SYSTEMS OPERATIONS (PS)	2	2	2	2	3	3	3	4	15%
SYSTEMS OPERATIONS (PROC)	36	39	44	49	54	60	68	76	12%
SYSTEMS INTEGRATION	69	72	75	81	95	113	144	166	15%
SOFTWARE DEVELOPMENT	36	38	38	41	47	57	72	81	13%
DESIGN/INTEGRATION	13	13	14	16	19	23	29	34	17%
PROJECT MGMT/CONSULTING	15	15	17	18	22	26	34	40	18%
EDUCATION/TRAINING	3	3	4	4	4	4	5	6	11%
OPERATIONS/MAINTENANCE	3	2	2	2	3	3	4	5	11%
TOTAL	266	285	308	333	370	414	473	526	11%
UTILITIES									
PROFESSIONAL SERVICES	186	188	196	208	222	237	254	271	6%
SYSTEMS OPERATIONS (PS)	4	5	5	5	6	7	7	8	8%
SYSTEMS OPERATIONS (PROC)	29	31	34	37	41	45	52	58	11%
SYSTEMS INTEGRATION	166	175	187	203	223	249	280	308	10%
SOFTWARE DEVELOPMENT	82	88	92	101	110	123	139	152	10%
DESIGN/INTEGRATION	29	31	34	36	41	45	51	56	10%
PROJECT MGMT/CONSULTING	38	40	43	47	52	59	66	73	10%
EDUCATION/TRAINING	9	10	11	11	12	14	14	16	8%
OPERATIONS/MAINTENANCE	7	6	7	7	9	9	10	11	9%
TOTAL	385	399	421	453	492	539	593	644	8%

TABLE 3

IBM FORECAST WITHOUT INFLATION
BY INDUSTRY MODE

IBM SEGMENTATION	1989 ($M)	1990 ($M)	1991 ($M)	1992 ($M)	1993 ($M)	1994 ($M)	1995 ($M)	1996 ($M)	'90-'9 CAGR
WHOLESALE DISTRIBUTION									
PROFESSIONAL SERVICES	404	429	448	468	492	521	550	579	5%
SYSTEMS OPERATIONS (PS)	23	26	27	29	32	35	40	43	9%
SYSTEMS OPERATIONS (PROC)	71	81	94	108	124	146	170	198	16%
SYSTEMS INTEGRATION	103	113	123	139	156	183	220	253	14%
SOFTWARE DEVELOPMENT	54	59	64	72	81	95	111	127	14%
DESIGN/INTEGRATION	21	22	24	27	31	37	45	53	16%
PROJECT MGMT/CONSULTING	19	22	24	27	31	36	45	53	16%
EDUCATION/TRAINING	4	5	5	7	6	8	9	10	12%
OPERATIONS/MAINTENANCE	4	5	5	7	6	8	9	10	12%
TOTAL	601	649	692	744	805	885	979	1073	9%
RETAIL DISTRIBUTION									
PROFESSIONAL SERVICES	596	636	666	706	760	830	913	985	8%
SYSTEMS OPERATIONS (PS)	12	14	14	16	17	19	21	23	9%
SYSTEMS OPERATIONS (PROC)	96	114	135	160	189	224	267	317	18%
SYSTEMS INTEGRATION	144	176	213	255	309	381	477	584	22%
SOFTWARE DEVELOPMENT	74	92	112	133	160	196	247	302	22%
DESIGN/INTEGRATION	30	36	43	51	63	80	99	123	23%
PROJECT MGMT/CONSULTING	29	35	41	50	61	76	96	117	22%
EDUCATION/TRAINING	5	6	8	10	12	15	17	21	22%
OPERATIONS/MAINTENANCE	5	6	8	10	12	15	17	21	22%
TOTAL	848	940	1028	1137	1275	1454	1679	1909	12%

TABLE 3

IBM FORECAST WITHOUT INFLATION
BY INDUSTRY MODE

IBM SEGMENTATION	1989 ($M)	1990 ($M)	1991 ($M)	1992 ($M)	1993 ($M)	1994 ($M)	1995 ($M)	1996 ($M)	'90-'19 CAGR
FINANCE									
PROFESSIONAL SERVICES	1620	1628	1664	1754	1880	2034	2202	2345	6%
SYSTEMS OPERATIONS (PS)	165	169	185	205	226	250	277	306	10%
SYSTEMS OPERATIONS (PROC)	1082	1202	1321	1460	1614	1785	2095	2347	12%
SYSTEMS INTEGRATION	129	156	187	225	280	355	449	555	23%
SOFTWARE DEVELOPMENT	61	74	89	104	129	165	207	255	23%
DESIGN/INTEGRATION	29	35	42	52	65	82	105	130	24%
PROJECT MGMT/CONSULTING	28	34	40	50	63	79	101	126	24%
EDUCATION/TRAINING	5	6	8	10	11	14	18	22	23%
OPERATIONS/MAINTENANCE	5	6	8	10	11	14	18	22	23%
TOTAL	2996	3155	3358	3644	4000	4424	5023	5553	10%
INSURANCE									
PROFESSIONAL SERVICES	1269	1375	1483	1622	1793	1989	2209	2434	10%
SYSTEMS OPERATIONS (PS)	106	112	117	125	133	140	148	157	6%
SYSTEMS OPERATIONS (PROC)	622	655	690	721	756	800	870	922	6%
SYSTEMS INTEGRATION	90	105	122	149	180	218	270	327	21%
SOFTWARE DEVELOPMENT	44	53	60	72	91	109	129	155	20%
DESIGN/INTEGRATION	19	22	26	33	39	46	59	72	22%
PROJECT MGMT/CONSULTING	19	20	26	32	37	45	58	72	24%
EDUCATION/TRAINING	4	5	6	6	7	9	12	14	20%
OPERATIONS/MAINTENANCE	4	5	6	6	7	9	12	14	20%
TOTAL	2087	2247	2412	2617	2862	3147	3496	3840	9%

TABLE 3

IBM FORECAST WITHOUT INFLATION
BY INDUSTRY MODE

IBM SEGMENTATION	1989 ($M)	1990 ($M)	1991 ($M)	1992 ($M)	1993 ($M)	1994 ($M)	1995 ($M)	1996 ($M)	'90-'9 CAGR
SECURITIES									
PROFESSIONAL SERVICES	351	352	360	379	407	440	476	507	6%
SYSTEMS OPERATIONS (PS)	36	37	40	45	49	55	60	67	10%
SYSTEMS OPERATIONS (PROC)	237	264	290	320	354	391	460	515	12%
SYSTEMS INTEGRATION	28	33	40	48	60	76	96	119	23%
SOFTWARE DEVELOPMENT	13	16	19	22	28	35	44	55	23%
DESIGN/INTEGRATION	6	8	9	11	14	18	22	28	24%
PROJECT MGMT/CONSULTING	6	7	9	11	13	17	22	27	24%
EDUCATION/TRAINING	1	1	2	2	2	3	4	5	22%
OPERATIONS/MAINTENANCE	1	1	2	2	2	3	4	5	22%
TOTAL	652	686	730	792	870	962	1092	1207	10%
FEDERAL GOVERNMENT									
PROFESSIONAL SERVICES	2069	2087	2078	2078	2084	2100	2120	2132	0%
SYSTEMS OPERATIONS (PS)	860	938	1005	1072	1133	1188	1246	1322	6%
SYSTEMS OPERATIONS (PROC)	258	289	320	357	388	396	406	436	7%
SYSTEMS INTEGRATION	1183	1307	1417	1545	1689	1846	2023	2214	9%
SOFTWARE DEVELOPMENT	555	678	733	800	873	954	1044	1140	9%
DESIGN/INTEGRATION	256	218	235	255	278	302	330	359	9%
PROJECT MGMT/CONSULTING	283	315	343	376	412	452	497	545	10%
EDUCATION/TRAINING	49	48	47	46	45	44	44	43	-2%
OPERATIONS/MAINTENANCE	39	48	59	69	81	94	110	126	18%
TOTAL	4370	4620	4821	5053	5294	5530	5795	6103	5%

TABLE 3

IBM FORECAST WITHOUT INFLATION
BY INDUSTRY MODE

IBM SEGMENTATION	1989 ($M)	1990 ($M)	1991 ($M)	1992 ($M)	1993 ($M)	1994 ($M)	1995 ($M)	1996 ($M)	'90-'9 CAGR
GRAND TOTAL									
PROFESSIONAL SERVICES	15184	16057	16909	18029	19433	21135	23113	24968	8%
SYSTEMS OPERATIONS (PS)	1631	1768	1906	2061	2219	2383	2591	2807	8%
SYSTEMS OPERATIONS (PROC)	4361	4802	5361	6010	6741	7568	8724	9890	13%
SYSTEMS INTEGRATION	2897	3291	3691	4166	4771	5564	6563	7603	15%
SOFTWARE DEVELOPMENT	1433	1701	1906	2133	2434	2839	3332	3844	14%
DESIGN/INTEGRATION	590	601	675	767	890	1044	1244	1454	16%
PROJECT MGMT/CONSULTING	650	736	819	937	1080	1257	1492	1735	15%
EDUCATION/TRAINING	120	130	144	157	170	193	220	250	11%
OPERATIONS/MAINTENANCE	105	124	147	172	197	231	274	320	17%
TOTAL	24073	25919	27867	30265	33164	36650	40990	45269	10%

TABLE 4

IBM FORECAST WITH INFLATION
BY INDUSTRY MODE (BASE 1989 DOLLARS)

SEGMENTATION	1989 ($M)	1990 ($M)	1991 ($M)	1992 ($M)	1993 ($M)	1994 ($M)	1995 ($M)	1996 ($M)	'90-'95 CAGR
	1.0000	1.0410	1.0420	1.0390	1.0390	1.0380	1.0380	1.0390	
INFLATION FACTORS	1.0000	1.0410	1.0847	1.1270	1.1710	1.2155	1.2617	1.3109	
MANUFACTURING									
PROFESSIONAL SERVICES	1691	1874	2059	2283	2573	2933	3371	3799	12%
SYSTEMS OPERATIONS (PS)	25	30	34	39	44	50	58	67	14%
SYSTEMS OPERATIONS (PROC)	141	176	219	271	333	409	502	621	23%
SYSTEMS INTEGRATION	179	231	287	352	435	549	700	876	25%
SOFTWARE DEVELOPMENT	90	117	148	178	217	275	352	440	25%
DESIGN/INTEGRATION	39	49	60	73	92	117	149	187	25%
PROJECT MGMT/CONSULTING	37	47	57	71	90	113	145	182	25%
EDUCATION/TRAINING	7	9	11	15	18	21	27	33	24%
OPERATIONS/MAINTENANCE	7	9	11	15	18	21	27	33	24%
TOTAL	2036	2310	2599	2944	3384	3940	4632	5363	15%
AUTOMOTIVE									
PROFESSIONAL SERVICES	270	298	328	363	410	467	538	607	13%
SYSTEMS OPERATIONS (PS)	4	5	6	7	7	8	10	11	15%
SYSTEMS OPERATIONS (PROC)	25	31	38	47	57	70	86	106	23%
SYSTEMS INTEGRATION	29	38	47	57	70	89	112	140	24%
SOFTWARE DEVELOPMENT	15	19	24	29	35	44	57	71	24%
DESIGN/INTEGRATION	6	8	10	12	15	19	24	30	24%
PROJECT MGMT/CONSULTING	6	8	9	12	14	18	23	29	25%
EDUCATION/TRAINING	1	1	2	2	3	3	4	5	24%
OPERATIONS/MAINTENANCE	1	1	2	2	3	3	4	5	24%
TOTAL	328	372	418	474	545	635	747	865	15%

TABLE 4

IBM FORECAST WITH INFLATION
BY INDUSTRY MODE (BASE 1989 DOLLARS)

SEGMENTATION	1989 ($M)	1990 ($M)	1991 ($M)	1992 ($M)	1993 ($M)	1994 ($M)	1995 ($M)	1996 ($M)	'90-'95 CAGR
	1.0000	1.0410	1.0420	1.0390	1.0390	1.0380	1.0380	1.0390	
INFLATION FACTORS	1.0000	1.0410	1.0847	1.1270	1.1710	1.2155	1.2617	1.3109	
AEROSPACE									
PROFESSIONAL SERVICES	375	415	456	505	569	650	748	843	12%
SYSTEMS OPERATIONS (PS)	6	7	8	9	10	11	13	15	15%
SYSTEMS OPERATIONS (PROC)	33	41	51	64	78	96	118	146	23%
SYSTEMS INTEGRATION	42	53	66	81	100	126	160	199	24%
SOFTWARE DEVELOPMENT	21	27	34	41	50	63	80	100	24%
DESIGN/INTEGRATION	9	11	14	17	21	27	34	42	24%
PROJECT MGMT/CONSULTING	9	11	13	16	21	26	33	41	25%
EDUCATION/TRAINING	2	2	3	3	4	5	6	8	24%
OPERATIONS/MAINTENANCE	2	2	3	3	4	5	6	8	24%
TOTAL	456	517	581	658	757	883	1039	1203	15%
ELECTRICAL MACHINERY									
PROFESSIONAL SERVICES	713	789	866	960	1082	1234	1421	1601	12%
SYSTEMS OPERATIONS (PS)	11	13	15	17	19	22	26	29	15%
SYSTEMS OPERATIONS (PROC)	63	78	98	121	148	182	224	277	23%
SYSTEMS INTEGRATION	79	102	126	154	190	239	303	378	24%
SOFTWARE DEVELOPMENT	39	51	65	78	95	120	153	190	24%
DESIGN/INTEGRATION	17	22	26	32	40	51	65	81	24%
PROJECT MGMT/CONSULTING	16	21	25	31	39	49	62	78	25%
EDUCATION/TRAINING	3	4	5	6	8	9	12	15	24%
OPERATIONS/MAINTENANCE	3	4	5	6	8	9	12	15	24%
TOTAL	866	981	1104	1251	1439	1677	1973	2286	15%

TABLE 4

IBM FORECAST WITH INFLATION
BY INDUSTRY MODE (BASE 1989 DOLLARS)

SEGMENTATION	1989 ($M)	1990 ($M)	1991 ($M)	1992 ($M)	1993 ($M)	1994 ($M)	1995 ($M)	1996 ($M)	'90-'95 CAGR
	1.0000	1.0410	1.0420	1.0390	1.0390	1.0380	1.0380	1.0390	
INFLATION FACTORS	1.0000	1.0410	1.0847	1.1270	1.1710	1.2155	1.2617	1.3109	
PROCESS									
PROFESSIONAL SERVICES	968	1090	1206	1350	1525	1752	2035	2310	13%
SYSTEMS OPERATIONS (PS)	32	36	41	47	54	62	73	84	15%
SYSTEMS OPERATIONS (PROC)	212	247	286	331	380	441	528	617	16%
SYSTEMS INTEGRATION	35	43	51	60	73	91	112	136	21%
SOFTWARE DEVELOPMENT	19	23	28	33	40	49	60	73	21%
DESIGN/INTEGRATION	6	7	9	11	13	16	19	24	22%
PROJECT MGMT/CONSULTING	6	8	9	11	14	17	21	26	23%
EDUCATION/TRAINING	2	2	3	3	3	5	6	7	20%
OPERATIONS/MAINTENANCE	2	2	3	3	3	5	6	7	20%
TOTAL	1246	1416	1585	1788	2032	2346	2749	3147	14%
CONSUMER GOODS									
PROFESSIONAL SERVICES	232	261	289	324	366	420	488	554	13%
SYSTEMS OPERATIONS (PS)	8	9	10	11	13	15	17	20	15%
SYSTEMS OPERATIONS (PROC)	50	59	68	79	90	105	126	146	16%
SYSTEMS INTEGRATION	8	10	12	14	17	21	26	31	22%
SOFTWARE DEVELOPMENT	4	5	6	7	9	11	14	17	21%
DESIGN/INTEGRATION	1	2	2	2	3	4	4	5	23%
PROJECT MGMT/CONSULTING	1	2	2	2	3	4	5	6	23%
EDUCATION/TRAINING	0.4	0.5	1	1	1	1	1	2	20%
OPERATIONS/MAINTENANCE	0.4	0.5	1	1	1	1	1	2	20%
TOTAL	298	339	379	427	486	560	656	751	14%

TABLE 4

IBM FORECAST WITH INFLATION
BY INDUSTRY MODE (BASE 1989 DOLLARS)

SEGMENTATION	1989 ($M)	1990 ($M)	1991 ($M)	1992 ($M)	1993 ($M)	1994 ($M)	1995 ($M)	1996 ($M)	'90-'95 CAGR
	1.0000	1.0410	1.0420	1.0390	1.0390	1.0380	1.0380	1.0390	
INFLATION FACTORS	1.0000	1.0410	1.0847	1.1270	1.1710	1.2155	1.2617	1.3109	
CHEMICALS/PHARM.									
PROFESSIONAL SERVICES	192	217	240	268	303	349	405	460	13%
SYSTEMS OPERATIONS (PS)	6	7	8	9	11	13	15	17	15%
SYSTEMS OPERATIONS (PROC)	43	50	58	67	76	89	106	124	16%
SYSTEMS INTEGRATION	7	8	10	11	14	17	21	26	21%
SOFTWARE DEVELOPMENT	4	4	5	6	8	9	11	14	20%
DESIGN/INTEGRATION	1	1	2	2	2	3	4	4	22%
PROJECT MGMT/CONSULTING	1	1	2	2	3	3	4	5	22%
EDUCATION/TRAINING	0.3	0.4	0.5	0.5	1	1	1	1	20%
OPERATIONS/MAINTENANCE	0.3	0.4	0.5	0.5	1	1	1	1	20%
TOTAL	248	282	316	356	405	467	547	626	14%
PETROLEUM									
PROFESSIONAL SERVICES	375	420	464	517	583	667	771	872	13%
SYSTEMS OPERATIONS (PS)	12	14	16	18	21	24	28	32	15%
SYSTEMS OPERATIONS (PROC)	81	95	109	127	146	170	204	238	17%
SYSTEMS INTEGRATION	49	56	64	73	86	103	124	146	17%
SOFTWARE DEVELOPMENT	25	29	33	38	44	53	64	75	17%
DESIGN/INTEGRATION	9	10	11	13	16	19	22	27	18%
PROJECT MGMT/CONSULTING	10	12	14	16	19	22	27	31	18%
EDUCATION/TRAINING	3	3	4	4	4	5	6	7	16%
OPERATIONS/MAINTENANCE	2	2	3	3	4	4	5	6	17%
TOTAL	518	585	653	736	836	964	1126	1288	14%

TABLE 4

IBM FORECAST WITH INFLATION
BY INDUSTRY MODE (BASE 1989 DOLLARS)

SEGMENTATION	1989 ($M)	1990 ($M)	1991 ($M)	1992 ($M)	1993 ($M)	1994 ($M)	1995 ($M)	1996 ($M)	'90-'95 CAGR
	1.0000	1.0410	1.0420	1.0390	1.0390	1.0380	1.0380	1.0390	
INFLATION FACTORS	1.0000	1.0410	1.0847	1.1270	1.1710	1.2155	1.2617	1.3109	
COMMUNICATIONS									
PROFESSIONAL SERVICES	660	758	865	983	1132	1310	1522	1754	15%
SYSTEMS OPERATIONS (PS)	13	15	18	21	24	28	32	37	16%
SYSTEMS OPERATIONS (PROC)	32	36	41	48	55	64	77	89	16%
SYSTEMS INTEGRATION	74	89	104	119	143	181	230	278	21%
SOFTWARE DEVELOPMENT	43	51	60	68	81	104	131	159	21%
DESIGN/INTEGRATION	13	15	18	21	25	32	41	50	22%
PROJECT MGMT/CONSULTING	15	19	20	24	29	37	47	57	20%
EDUCATION/TRAINING	2	3	4	5	6	6	8	9	20%
OPERATIONS/MAINTENANCE	1	1	2	2	2	2	2	3	24%
TOTAL	779	898	1028	1171	1354	1582	1861	2158	16%
COMPUTER SERVICES									
PROFESSIONAL SERVICES	23	25	28	31	35	39	44	50	12%
SYSTEMS OPERATIONS (PS)	2	2	2	2	3	3	3	3	8%
SYSTEMS OPERATIONS (PROC)	3	3	4	4	4	5	6	7	13%
SYSTEMS INTEGRATION	4	5	7	9	11	14	18	22	26%
SOFTWARE DEVELOPMENT	2	3	3	4	5	7	8	11	25%
DESIGN/INTEGRATION	1	1	2	2	2	3	4	5	26%
PROJECT MGMT/CONSULTING	1	1	2	2	2	3	4	5	28%
EDUCATION/TRAINING	0.2	0.2	0.2	0.4	0.4	1	1	1	28%
OPERATIONS/MAINTENANCE	0.2	0.2	0.2	0.4	0.4	1	1	1	28%
TOTAL	32	36	41	46	53	61	71	82	15%

TABLE 4

IBM FORECAST WITH INFLATION
BY INDUSTRY MODE (BASE 1989 DOLLARS)

SEGMENTATION	1989 ($M)	1990 ($M)	1991 ($M)	1992 ($M)	1993 ($M)	1994 ($M)	1995 ($M)	1996 ($M)	'90-'95 CAGR
INFLATION FACTORS	1.0000	1.0410	1.0420	1.0390	1.0390	1.0380	1.0380	1.0390	
	1.0000	1.0410	1.0847	1.1270	1.1710	1.2155	1.2617	1.3109	
CONSULTANT									
PROFESSIONAL SERVICES	20	23	25	28	31	35	40	44	12%
SYSTEMS OPERATIONS (PS)	1	1	2	2	2	2	2	2	8%
SYSTEMS OPERATIONS (PROC)	1	1	1	1	1	2	2	2	15%
SYSTEMS INTEGRATION	3	4	5	7	8	11	14	18	28%
SOFTWARE DEVELOPMENT	2	2	2	3	4	5	7	8	27%
DESIGN/INTEGRATION	1	1	1	1	2	2	3	4	28%
PROJECT MGMT/CONSULTING	1	1	1	1	2	2	3	4	29%
EDUCATION/TRAINING	0.2	0.1	0.1	0.3	0.3	0.4	1	1	32%
OPERATIONS/MAINTENANCE	0.2	0.1	0.1	0.3	0.3	0.4	1	1	32%
TOTAL	26	29	33	38	43	50	58	67	15%
HEALTH									
PROFESSIONAL SERVICES	480	539	605	683	771	873	990	1121	13%
SYSTEMS OPERATIONS (PS)	73	82	92	105	120	137	160	183	14%
SYSTEMS OPERATIONS (PROC)	628	651	769	910	1079	1278	1516	1799	18%
SYSTEMS INTEGRATION	139	153	174	199	228	267	321	373	16%
SOFTWARE DEVELOPMENT	74	83	94	106	122	142	168	193	15%
DESIGN/INTEGRATION	23	25	29	33	39	45	57	67	18%
PROJECT MGMT/CONSULTING	28	31	35	41	47	56	69	82	17%
EDUCATION/TRAINING	7	7	8	10	10	12	14	16	14%
OPERATIONS/MAINTENANCE	7	7	8	10	10	12	14	16	14%
TOTAL	1320	1425	1641	1897	2198	2554	2987	3476	16%

TABLE 4

IBM FORECAST WITH INFLATION
BY INDUSTRY MODE (BASE 1989 DOLLARS)

SEGMENTATION	1989 ($M)	1990 ($M)	1991 ($M)	1992 ($M)	1993 ($M)	1994 ($M)	1995 ($M)	1996 ($M)	'90-'95 CAGR
	1.0000	1.0410	1.0420	1.0390	1.0390	1.0380	1.0380	1.0390	
INFLATION FACTORS	1.0000	1.0410	1.0847	1.1270	1.1710	1.2155	1.2617	1.3109	
HIGHER EDUCATION									
PROFESSIONAL SERVICES	282	320	363	414	471	536	612	698	14%
SYSTEMS OPERATIONS (PS)	39	44	49	56	63	72	87	99	14%
SYSTEMS OPERATIONS (PROC)	115	134	155	182	215	255	311	371	18%
SYSTEMS INTEGRATION	60	69	80	95	116	145	179	217	21%
SOFTWARE DEVELOPMENT	31	37	43	49	60	76	93	112	21%
DESIGN/INTEGRATION	11	13	14	17	21	26	33	41	22%
PROJECT MGMT/CONSULTING	13	15	18	21	27	32	41	51	23%
EDUCATION/TRAINING	2	3	3	4	4	5	6	7	18%
OPERATIONS/MAINTENANCE	2	3	3	4	4	5	6	7	18%
TOTAL	496	567	648	747	865	1008	1188	1385	16%
MEDIA									
PROFESSIONAL SERVICES	631	703	778	867	981	1119	1288	1457	13%
SYSTEMS OPERATIONS (PS)	10	12	14	16	18	21	24	28	15%
SYSTEMS OPERATIONS (PROC)	52	64	79	97	118	145	178	219	23%
SYSTEMS INTEGRATION	80	99	120	145	177	224	286	354	24%
SOFTWARE DEVELOPMENT	41	51	63	75	90	115	146	180	23%
DESIGN/INTEGRATION	16	20	24	29	36	46	59	74	24%
PROJECT MGMT/CONSULTING	17	20	24	29	37	47	60	75	24%
EDUCATION/TRAINING	3	4	5	6	7	9	11	13	23%
OPERATIONS/MAINTENANCE	3	3	4	5	6	8	10	12	24%
TOTAL	773	878	991	1124	1294	1509	1776	2058	15%

TABLE 4

IBM FORECAST WITH INFLATION
BY INDUSTRY MODE (BASE 1989 DOLLARS)

SEGMENTATION	1989 ($M)	1990 ($M)	1991 ($M)	1992 ($M)	1993 ($M)	1994 ($M)	1995 ($M)	1996 ($M)	'90-'95 CAGR
	1.0000	1.0410	1.0420	1.0390	1.0390	1.0380	1.0380	1.0390	
INFLATION FACTORS	1.0000	1.0410	1.0847	1.1270	1.1710	1.2155	1.2617	1.3109	
SCHOOLS									
PROFESSIONAL SERVICES	144	163	185	211	240	273	312	355	14%
SYSTEMS OPERATIONS (PS)	17	20	22	26	29	33	41	47	15%
SYSTEMS OPERATIONS (PROC)	49	58	68	81	97	118	144	174	20%
SYSTEMS INTEGRATION	25	29	34	41	50	63	79	97	22%
SOFTWARE DEVELOPMENT	13	15	18	21	25	32	40	49	21%
DESIGN/INTEGRATION	4	5	6	7	9	11	15	18	23%
PROJECT MGMT/CONSULTING	6	7	8	10	12	15	19	24	24%
EDUCATION/TRAINING	1	1	1	2	2	2	2	3	19%
OPERATIONS/MAINTENANCE	1	1	1	2	2	2	2	3	19%
TOTAL	235	270	310	359	417	487	575	672	16%
STATE/LOCAL GOV'T									
PROFESSIONAL SERVICES	1473	1672	1904	2174	2484	2836	3243	3710	14%
SYSTEMS OPERATIONS (PS)	163	188	214	248	288	333	406	475	17%
SYSTEMS OPERATIONS (PROC)	403	490	595	725	890	1094	1343	1647	22%
SYSTEMS INTEGRATION	173	212	251	298	368	468	602	743	23%
SOFTWARE DEVELOPMENT	89	110	131	153	186	238	304	374	23%
DESIGN/INTEGRATION	29	35	42	50	63	80	104	129	24%
PROJECT MGMT/CONSULTING	45	55	63	77	96	124	161	200	24%
EDUCATION/TRAINING	5	6	8	9	11	13	17	20	21%
OPERATIONS/MAINTENANCE	5	6	8	9	11	13	17	20	21%
TOTAL	2212	2562	2965	3446	4029	4731	5595	6575	17%

TABLE 4

IBM FORECAST WITH INFLATION
BY INDUSTRY MODE (BASE 1989 DOLLARS)

SEGMENTATION	1989 ($M)	1990 ($M)	1991 ($M)	1992 ($M)	1993 ($M)	1994 ($M)	1995 ($M)	1996 ($M)	'90-'95 CAGR
	1.0000	1.0410	1.0420	1.0390	1.0390	1.0380	1.0380	1.0390	
INFLATION FACTORS	1.0000	1.0410	1.0847	1.1270	1.1710	1.2155	1.2617	1.3109	
TRANSPORTATION									
PROFESSIONAL SERVICES	160	180	202	227	256	289	326	368	13%
SYSTEMS OPERATIONS (PS)	2	2	2	3	3	3	4	5	19%
SYSTEMS OPERATIONS (PROC)	36	41	48	55	63	73	85	99	16%
SYSTEMS INTEGRATION	69	75	81	91	111	137	181	217	19%
SOFTWARE DEVELOPMENT	36	40	41	46	56	70	90	106	18%
DESIGN/INTEGRATION	13	13	15	18	22	28	36	44	22%
PROJECT MGMT/CONSULTING	15	16	18	21	26	32	43	53	22%
EDUCATION/TRAINING	3	3	4	4	4	5	7	8	15%
OPERATIONS/MAINTENANCE	3	3	3	3	3	3	5	6	15%
TOTAL	266	297	334	375	433	503	597	689	15%
UTILITIES									
PROFESSIONAL SERVICES	186	195	212	234	260	289	321	355	10%
SYSTEMS OPERATIONS (PS)	4	5	5	6	7	8	9	10	13%
SYSTEMS OPERATIONS (PROC)	29	33	37	42	48	55	66	76	15%
SYSTEMS INTEGRATION	166	183	203	228	261	303	353	403	14%
SOFTWARE DEVELOPMENT	82	91	100	113	129	150	175	200	14%
DESIGN/INTEGRATION	29	33	37	41	47	55	64	73	14%
PROJECT MGMT/CONSULTING	38	42	47	53	61	71	83	95	15%
EDUCATION/TRAINING	9	10	12	12	14	17	18	21	13%
OPERATIONS/MAINTENANCE	7	7	8	8	10	11	12	14	13%
TOTAL	385	416	457	510	576	655	748	844	12%

TABLE 4

IBM FORECAST WITH INFLATION
BY INDUSTRY MODE (BASE 1989 DOLLARS)

SEGMENTATION	1989 ($M)	1990 ($M)	1991 ($M)	1992 ($M)	1993 ($M)	1994 ($M)	1995 ($M)	1996 ($M)	'90-'95 CAGR
	1.0000	1.0410	1.0420	1.0390	1.0390	1.0380	1.0380	1.0390	
INFLATION FACTORS	1.0000	1.0410	1.0847	1.1270	1.1710	1.2155	1.2617	1.3109	
WHOLESALE DISTRIBUTION									
PROFESSIONAL SERVICES	404	447	486	527	576	633	694	759	9%
SYSTEMS OPERATIONS (PS)	23	27	30	33	37	43	50	57	13%
SYSTEMS OPERATIONS (PROC)	71	85	101	122	146	177	215	260	20%
SYSTEMS INTEGRATION	103	117	133	157	183	223	277	331	19%
SOFTWARE DEVELOPMENT	54	61	70	81	95	115	140	166	18%
DESIGN/INTEGRATION	21	23	27	31	36	45	57	69	20%
PROJECT MGMT/CONSULTING	19	23	26	30	37	44	57	69	20%
EDUCATION/TRAINING	4	5	6	7	8	9	11	13	16%
OPERATIONS/MAINTENANCE	4	5	6	7	8	9	11	13	16%
TOTAL	601	676	750	838	943	1075	1236	1407	13%
RETAIL DISTRIBUTION									
PROFESSIONAL SERVICES	596	662	722	796	890	1009	1152	1291	12%
SYSTEMS OPERATIONS (PS)	12	14	15	18	20	23	26	30	13%
SYSTEMS OPERATIONS (PROC)	96	119	146	180	221	273	337	416	23%
SYSTEMS INTEGRATION	144	183	231	287	362	463	602	766	27%
SOFTWARE DEVELOPMENT	74	96	121	150	188	239	312	396	27%
DESIGN/INTEGRATION	30	37	47	58	74	97	126	161	28%
PROJECT MGMT/CONSULTING	29	37	44	57	72	92	121	154	27%
EDUCATION/TRAINING	5	7	9	12	14	18	22	28	26%
OPERATIONS/MAINTENANCE	5	7	9	12	14	18	22	28	26%
TOTAL	848	978	1115	1281	1493	1767	2118	2502	17%

TABLE 4

IBM FORECAST WITH INFLATION
BY INDUSTRY MODE (BASE 1989 DOLLARS)

SEGMENTATION	1989 ($M)	1990 ($M)	1991 ($M)	1992 ($M)	1993 ($M)	1994 ($M)	1995 ($M)	1996 ($M)	'90-'95 CAGR
	1.0000	1.0410	1.0420	1.0390	1.0390	1.0380	1.0380	1.0390	
INFLATION FACTORS	1.0000	1.0410	1.0847	1.1270	1.1710	1.2155	1.2617	1.3109	
FINANCE									
PROFESSIONAL SERVICES	1620	1694	1805	1977	2202	2472	2779	3073	10%
SYSTEMS OPERATIONS (PS)	165	176	201	231	265	304	349	401	15%
SYSTEMS OPERATIONS (PROC)	1082	1251	1433	1645	1890	2169	2644	3076	16%
SYSTEMS INTEGRATION	129	163	203	254	328	432	566	728	28%
SOFTWARE DEVELOPMENT	61	77	96	117	151	201	262	335	28%
DESIGN/INTEGRATION	29	37	45	58	77	100	132	171	29%
PROJECT MGMT/CONSULTING	28	35	44	57	73	96	127	165	29%
EDUCATION/TRAINING	5	7	9	11	13	17	22	29	27%
OPERATIONS/MAINTENANCE	5	7	9	11	13	17	22	29	27%
TOTAL	2996	3284	3642	4107	4684	5377	6338	7279	14%
INSURANCE									
PROFESSIONAL SERVICES	1269	1431	1608	1827	2099	2418	2787	3190	14%
SYSTEMS OPERATIONS (PS)	106	117	127	141	156	170	187	206	10%
SYSTEMS OPERATIONS (PROC)	622	682	748	813	886	973	1097	1209	10%
SYSTEMS INTEGRATION	90	109	132	168	211	264	340	429	26%
SOFTWARE DEVELOPMENT	44	55	65	81	106	133	163	203	24%
DESIGN/INTEGRATION	19	23	28	37	46	55	74	94	26%
PROJECT MGMT/CONSULTING	19	21	28	36	44	54	73	94	28%
EDUCATION/TRAINING	4	5	6	7	8	11	15	18	24%
OPERATIONS/MAINTENANCE	4	5	6	7	8	11	15	18	24%
TOTAL	2087	2339	2616	2949	3352	3825	4411	5034	14%

TABLE 4

IBM FORECAST WITH INFLATION
BY INDUSTRY MODE (BASE 1989 DOLLARS)

SEGMENTATION	1989 ($M)	1990 ($M)	1991 ($M)	1992 ($M)	1993 ($M)	1994 ($M)	1995 ($M)	1996 ($M)	'90-'95 CAGR
INFLATION FACTORS	1.0000	1.0410	1.0420	1.0390	1.0390	1.0380	1.0380	1.0390	
	1.0000	1.0410	1.0847	1.1270	1.1710	1.2155	1.2617	1.3109	
SECURITIES									
PROFESSIONAL SERVICES	351	367	390	428	476	535	601	665	10%
SYSTEMS OPERATIONS (PS)	36	38	44	50	58	66	76	88	15%
SYSTEMS OPERATIONS (PROC)	237	274	314	361	415	476	580	675	16%
SYSTEMS INTEGRATION	28	35	43	54	70	92	121	156	28%
SOFTWARE DEVELOPMENT	13	17	21	25	32	43	56	72	28%
DESIGN/INTEGRATION	6	8	10	12	16	21	28	37	29%
PROJECT MGMT/CONSULTING	6	8	9	12	16	21	27	35	29%
EDUCATION/TRAINING	1	1	2	2	3	4	5	6	27%
OPERATIONS/MAINTENANCE	1	1	2	2	3	4	5	6	27%
TOTAL	652	714	792	893	1019	1169	1378	1583	14%
FEDERAL GOVERNMENT									
PROFESSIONAL SERVICES	2069	2172	2254	2342	2440	2552	2674	2795	4%
SYSTEMS OPERATIONS (PS)	860	977	1090	1208	1327	1444	1572	1733	10%
SYSTEMS OPERATIONS (PROC)	258	301	347	403	455	482	513	572	11%
SYSTEMS INTEGRATION	1183	1360	1538	1742	1977	2244	2553	2902	13%
SOFTWARE DEVELOPMENT	555	706	796	901	1022	1159	1317	1495	13%
DESIGN/INTEGRATION	256	227	255	288	325	368	416	471	13%
PROJECT MGMT/CONSULTING	283	328	372	423	482	549	627	715	14%
EDUCATION/TRAINING	49	50	51	52	52	54	55	56	2%
OPERATIONS/MAINTENANCE	39	50	64	78	95	114	138	165	22%
TOTAL	4370	4810	5229	5695	6199	6722	7312	8001	9%

TABLE 4

IBM FORECAST WITH INFLATION
BY INDUSTRY MODE (BASE 1989 DOLLARS)

SEGMENTATION	1989 ($M)	1990 ($M)	1991 ($M)	1992 ($M)	1993 ($M)	1994 ($M)	1995 ($M)	1996 ($M)	'90-'95 CAGR
	1.0000	1.0410	1.0420	1.0390	1.0390	1.0380	1.0380	1.0390	
INFLATION FACTORS	1.0000	1.0410	1.0847	1.1270	1.1710	1.2155	1.2617	1.3109	
GRAND TOTAL									
PROFESSIONAL SERVICES	15184	16716	18342	20319	22756	25689	29161	32730	12%
SYSTEMS OPERATIONS (PS)	1631	1841	2068	2322	2598	2897	3268	3680	12%
SYSTEMS OPERATIONS (PROC)	4361	4999	5815	6773	7893	9199	11007	12964	17%
SYSTEMS INTEGRATION	2897	3426	4004	4695	5587	6763	8280	9967	19%
SOFTWARE DEVELOPMENT	1433	1771	2067	2404	2850	3451	4204	5039	19%
DESIGN/INTEGRATION	590	625	732	865	1042	1270	1570	1906	20%
PROJECT MGMT/CONSULTING	650	766	888	1056	1264	1528	1882	2275	20%
EDUCATION/TRAINING	120	136	156	177	199	234	278	328	15%
OPERATIONS/MAINTENANCE	105	129	160	193	231	281	346	419	22%
TOTAL	24073	26981	30228	34109	38834	44548	51716	59341	14%

TABLE 5

IBM FORECAST WITH INFLATION
BY SUB-MODE OF DELIVERY

	1989 ($M)	1990 ($M)	1991 ($M)	1992 ($M)	1993 ($M)	1994 ($M)	1995 ($M)	1996 ($M)	'90-'95 CAGR
PROFESSIONAL SERVICES									
CONSULTING	4288	4863	5501	6294	7273	8471	9968	11581	15%
EDUCATION/TRAINING	2344	2589	2819	3092	3435	3841	4328	4822	11%
SOFTWARE DEVELOPMENT	11344	12562	13865	15434	17404	19860	22799	25875	13%
SYSTEMS OPERATIONS (PS)	1736	1969	2227	2516	2829	3177	3614	4099	13%
TOTAL PROF. SVCS.	19712	21983	24413	27336	30941	35349	40709	46377	13%
SYSTEMS OPERATIONS (PROC)	4361	4999	5815	6773	7893	9199	11007	12964	17%
GRAND TOTAL	24073	26981	30228	34109	38834	44548	51716	59341	14%

TABLE 6

IBM FORECAST WITH INFLATION
BY INDUSTRY AND SUB-MODE OF DELIVERY

IBM SEGMENTATION	1989 ($M)	1990 ($M)	1991 ($M)	1992 ($M)	1993 ($M)	1994 ($M)	1995 ($M)	1996 ($M)	'90-'95 CAGR
MANUFACTURING									
PROFESSIONAL SERVICES	1716	1904	2093	2321	2616	2983	3430	3866	12%
CONSULTING	384	436	491	556	640	745	875	1007	15%
EDUCATION/TRAINING	248	275	299	327	366	412	468	522	11%
SOFTWARE DEVELOPMENT	1060	1163	1269	1399	1566	1776	2028	2270	12%
SYSTEMS OPERATIONS (PS)	25	30	34	39	44	50	58	67	14%
SYSTEMS OPERATIONS (PROC)	141	176	219	271	333	409	502	621	23%
SYSTEMS INTEGRATION	179	231	287	352	435	549	700	876	25%
SOFTWARE DEVELOPMENT	90	117	148	178	217	275	352	440	25%
DESIGN/INTEGRATION	39	49	60	73	92	117	149	187	25%
PROJECT MGMT/CONSULTING	37	47	57	71	90	113	145	182	25%
EDUCATION/TRAINING	7	9	11	15	18	21	27	33	24%
OPERATIONS/MAINTENANCE	7	9	11	15	18	21	27	33	24%
TOTAL	2036	2310	2599	2944	3384	3940	4632	5363	15%
AUTOMOTIVE									
PROFESSIONAL SERVICES	274	303	333	370	417	476	548	618	13%
CONSULTING	61	69	78	89	102	119	140	161	15%
EDUCATION/TRAINING	40	44	48	52	58	66	75	83	11%
SOFTWARE DEVELOPMENT	169	185	202	223	249	283	324	363	12%
SYSTEMS OPERATIONS (PS)	4	5	6	7	7	8	10	11	15%
SYSTEMS OPERATIONS (PROC)	25	31	38	47	57	70	86	106	23%
SYSTEMS INTEGRATION	29	38	47	57	70	89	112	140	24%
SOFTWARE DEVELOPMENT	15	19	24	29	35	44	57	71	24%
DESIGN/INTEGRATION	6	8	10	12	15	19	24	30	24%
PROJECT MGMT/CONSULTING	6	8	9	12	14	18	23	29	25%
EDUCATION/TRAINING	1	1	2	2	3	3	4	5	24%
OPERATIONS/MAINTENANCE	1	1	2	2	3	3	4	5	24%
TOTAL	328	372	418	474	545	635	747	865	15%

TABLE 6

IBM FORECAST WITH INFLATION
BY INDUSTRY AND SUB-MODE OF DELIVERY

IBM SEGMENTATION	1989 ($M)	1990 ($M)	1991 ($M)	1992 ($M)	1993 ($M)	1994 ($M)	1995 ($M)	1996 ($M)	'90-'95 CAGR
AEROSPACE									
PROFESSIONAL SERVICES	381	422	463	514	579	661	761	858	13%
CONSULTING	85	97	109	123	142	165	194	223	15%
EDUCATION/TRAINING	55	61	66	72	81	91	104	116	11%
SOFTWARE DEVELOPMENT	235	258	281	309	347	393	450	504	12%
SYSTEMS OPERATIONS (PS)	6	7	8	9	10	11	13	15	15%
SYSTEMS OPERATIONS (PROC)	33	41	51	64	78	96	118	146	23%
SYSTEMS INTEGRATION	42	53	66	81	100	126	160	199	24%
SOFTWARE DEVELOPMENT	21	27	34	41	50	63	80	100	24%
DESIGN/INTEGRATION	9	11	14	17	21	27	34	42	24%
PROJECT MGMT/CONSULTING	9	11	13	16	21	26	33	41	25%
EDUCATION/TRAINING	2	2	3	3	4	5	6	8	24%
OPERATIONS/MAINTENANCE	2	2	3	3	4	5	6	8	24%
TOTAL	456	517	581	658	757	883	1039	1203	15%
ELECTRICAL MACHINERY									
PROFESSIONAL SERVICES	724	802	881	976	1101	1256	1446	1631	13%
CONSULTING	162	184	206	234	269	313	369	425	15%
EDUCATION/TRAINING	104	116	126	138	154	173	197	220	11%
SOFTWARE DEVELOPMENT	447	489	534	588	659	748	855	957	12%
SYSTEMS OPERATIONS (PS)	11	13	15	17	19	22	26	29	15%
SYSTEMS OPERATIONS (PROC)	63	78	98	121	148	182	224	277	23%
SYSTEMS INTEGRATION	79	102	126	154	190	239	303	378	24%
SOFTWARE DEVELOPMENT	39	51	65	78	95	120	153	190	24%
DESIGN/INTEGRATION	17	22	26	32	40	51	65	81	24%
PROJECT MGMT/CONSULTING	16	21	25	31	39	49	62	78	25%
EDUCATION/TRAINING	3	4	5	6	8	9	12	15	24%
OPERATIONS/MAINTENANCE	3	4	5	6	8	9	12	15	24%
TOTAL	866	981	1104	1251	1439	1677	1973	2286	15%

TABLE 6

IBM FORECAST WITH INFLATION
BY INDUSTRY AND SUB-MODE OF DELIVERY

IBM SEGMENTATION	1989 ($M)	1990 ($M)	1991 ($M)	1992 ($M)	1993 ($M)	1994 ($M)	1995 ($M)	1996 ($M)	'90-'95 CAGR
PROCESS									
PROFESSIONAL SERVICES	999	1127	1248	1397	1579	1814	2108	2394	13%
CONSULTING	219	254	288	329	380	445	528	612	16%
EDUCATION/TRAINING	142	160	175	194	217	246	283	317	12%
SOFTWARE DEVELOPMENT	606	677	744	827	929	1061	1224	1381	13%
SYSTEMS OPERATIONS (PS)	32	36	41	47	54	62	73	84	15%
SYSTEMS OPERATIONS (PROC)	212	247	286	331	380	441	528	617	16%
SYSTEMS INTEGRATION	35	43	51	60	73	91	112	136	21%
SOFTWARE DEVELOPMENT	19	23	28	33	40	49	60	73	21%
DESIGN/INTEGRATION	6	7	9	11	13	16	19	24	22%
PROJECT MGMT/CONSULTING	6	8	9	11	14	17	21	26	23%
EDUCATION/TRAINING	2	2	3	3	3	5	6	7	20%
OPERATIONS/MAINTENANCE	2	2	3	3	3	5	6	7	20%
TOTAL	1246	1416	1585	1788	2032	2346	2749	3147	14%
CONSUMER GOODS									
PROFESSIONAL SERVICES	239	270	299	335	379	435	505	574	13%
CONSULTING	53	61	69	79	91	107	127	147	16%
EDUCATION/TRAINING	34	38	42	46	52	59	68	76	12%
SOFTWARE DEVELOPMENT	145	162	178	198	223	254	294	331	13%
SYSTEMS OPERATIONS (PS)	8	9	10	11	13	15	17	20	15%
SYSTEMS OPERATIONS (PROC)	50	59	68	79	90	105	126	146	16%
SYSTEMS INTEGRATION	8	10	12	14	17	21	26	31	22%
SOFTWARE DEVELOPMENT	4	5	6	7	9	11	14	17	21%
DESIGN/INTEGRATION	1	2	2	2	3	4	4	5	23%
PROJECT MGMT/CONSULTING	1	2	2	2	3	4	5	6	23%
EDUCATION/TRAINING	0.4	0.5	0.6	0.6	0.8	1.0	1.3	1.5	20%
OPERATIONS/MAINTENANCE	0.4	0.5	0.6	0.6	0.8	1.0	1.3	1.5	20%
TOTAL	298	339	379	427	486	560	656	751	14%

TABLE 6

IBM FORECAST WITH INFLATION
BY INDUSTRY AND SUB-MODE OF DELIVERY

IBM SEGMENTATION	1989 ($M)	1990 ($M)	1991 ($M)	1992 ($M)	1993 ($M)	1994 ($M)	1995 ($M)	1996 ($M)	'90-'95 CAGR
CHEMICALS/PHARM.									
PROFESSIONAL SERVICES	199	224	248	278	314	361	420	477	13%
CONSULTING	44	50	57	65	76	89	105	122	16%
EDUCATION/TRAINING	28	32	35	39	43	49	56	63	12%
SOFTWARE DEVELOPMENT	121	135	148	165	185	211	244	275	13%
SYSTEMS OPERATIONS (PS)	6	7	8	9	11	13	15	17	15%
SYSTEMS OPERATIONS (PROC)	43	50	58	67	76	89	106	124	16%
SYSTEMS INTEGRATION	7	8	10	11	14	17	21	26	21%
SOFTWARE DEVELOPMENT	4	4	5	6	8	9	11	14	20%
DESIGN/INTEGRATION	1	1	2	2	2	3	4	4	22%
PROJECT MGMT/CONSULTING	1	1	2	2	3	3	4	5	22%
EDUCATION/TRAINING	0.3	0.4	0.5	0.5	0.7	0.9	1.1	1.3	20%
OPERATIONS/MAINTENANCE	0.3	0.4	0.5	0.5	0.7	0.9	1.1	1.3	20%
TOTAL	248	282	316	356	405	467	547	626	14%
PETROLEUM									
PROFESSIONAL SERVICES	388	434	480	536	604	691	799	905	13%
CONSULTING	85	98	110	126	145	169	200	231	15%
EDUCATION/TRAINING	55	62	67	74	83	94	107	120	12%
SOFTWARE DEVELOPMENT	235	261	286	317	355	404	464	521	12%
SYSTEMS OPERATIONS (PS)	12	14	16	18	21	24	28	32	15%
SYSTEMS OPERATIONS (PROC)	81	95	109	127	146	170	204	238	17%
SYSTEMS INTEGRATION	49	56	64	73	86	103	124	146	17%
SOFTWARE DEVELOPMENT	25	29	33	38	44	53	64	75	17%
DESIGN/INTEGRATION	9	10	11	13	16	19	22	27	18%
PROJECT MGMT/CONSULTING	10	12	14	16	19	22	27	31	18%
EDUCATION/TRAINING	3	3	4	4	4	5	6	7	16%
OPERATIONS/MAINTENANCE	2	2	3	3	4	4	5	6	17%
TOTAL	518	585	653	736	836	964	1126	1288	14%

TABLE 6

IBM FORECAST WITH INFLATION
BY INDUSTRY AND SUB-MODE OF DELIVERY

IBM SEGMENTATION	1989 ($M)	1990 ($M)	1991 ($M)	1992 ($M)	1993 ($M)	1994 ($M)	1995 ($M)	1996 ($M)	'90-'95 CAGR
COMMUNICATIONS									
PROFESSIONAL SERVICES	673	773	883	1004	1156	1337	1554	1790	15%
CONSULTING	150	176	206	240	282	333	395	465	18%
EDUCATION/TRAINING	97	111	126	141	161	184	211	241	14%
SOFTWARE DEVELOPMENT	414	470	533	603	689	793	916	1048	14%
SYSTEMS OPERATIONS (PS)	13	15	18	21	24	28	32	37	16%
SYSTEMS OPERATIONS (PROC)	32	36	41	48	55	64	77	89	16%
SYSTEMS INTEGRATION	74	89	104	119	143	181	230	278	21%
SOFTWARE DEVELOPMENT	43	51	60	68	81	104	131	159	21%
DESIGN/INTEGRATION	13	15	18	21	25	32	41	50	22%
PROJECT MGMT/CONSULTING	15	19	20	24	29	37	47	57	20%
EDUCATION/TRAINING	2	3	4	5	6	6	8	9	20%
OPERATIONS/MAINTENANCE	1	1	2	2	2	2	2	3	24%
TOTAL	779	898	1028	1171	1354	1582	1861	2158	16%
COMPUTER SERVICES									
PROFESSIONAL SERVICES	24	27	30	34	38	42	47	53	12%
CONSULTING	5	6	7	8	9	10	11	13	14%
EDUCATION/TRAINING	3	4	4	4	5	6	6	7	11%
SOFTWARE DEVELOPMENT	14	16	17	19	21	24	27	30	11%
SYSTEMS OPERATIONS (PS)	2	2	2	2	3	3	3	3	8%
SYSTEMS OPERATIONS (PROC)	3	3	4	4	4	5	6	7	13%
SYSTEMS INTEGRATION	4	5	7	9	11	14	18	22	26%
SOFTWARE DEVELOPMENT	2	3	3	4	5	7	8	11	25%
DESIGN/INTEGRATION	1	1	2	2	2	3	4	5	26%
PROJECT MGMT/CONSULTING	1	1	2	2	2	3	4	5	28%
EDUCATION/TRAINING	0.2	0.2	0.2	0.4	0.4	0.6	0.7	0.9	28%
OPERATIONS/MAINTENANCE	0.2	0.2	0.2	0.4	0.4	0.6	0.7	0.9	28%
TOTAL	32	36	41	46	53	61	71	82	15%

TABLE 6

IBM FORECAST WITH INFLATION
BY INDUSTRY AND SUB-MODE OF DELIVERY

IBM SEGMENTATION	1989 ($M)	1990 ($M)	1991 ($M)	1992 ($M)	1993 ($M)	1994 ($M)	1995 ($M)	1996 ($M)	'90-'95 CAGR
CONSULTANT									
PROFESSIONAL SERVICES	22	24	27	30	33	37	42	47	12%
CONSULTING	5	5	6	7	8	9	10	12	14%
EDUCATION/TRAINING	3	3	4	4	4	5	5	6	11%
SOFTWARE DEVELOPMENT	13	14	16	17	19	21	24	26	11%
SYSTEMS OPERATIONS (PS)	1	1	2	2	2	2	2	2	8%
SYSTEMS OPERATIONS (PROC)	1	1	1	1	1	2	2	2	15%
SYSTEMS INTEGRATION	3	4	5	7	8	11	14	18	28%
SOFTWARE DEVELOPMENT	2	2	2	3	4	5	7	8	27%
DESIGN/INTEGRATION	1	1	1	1	2	2	3	4	28%
PROJECT MGMT/CONSULTING	1	1	1	1	2	2	3	4	29%
EDUCATION/TRAINING	0.2	0.1	0.1	0.3	0.3	0.4	0.6	0.8	32%
OPERATIONS/MAINTENANCE	0.2	0.1	0.1	0.3	0.3	0.4	0.6	0.8	32%
TOTAL	26	29	33	38	43	50	58	67	15%
HEALTH									
PROFESSIONAL SERVICES	553	620	697	788	891	1010	1150	1304	13%
CONSULTING	109	125	144	166	192	222	257	297	15%
EDUCATION/TRAINING	70	79	88	98	110	123	137	154	12%
SOFTWARE DEVELOPMENT	301	334	373	418	469	529	595	670	12%
SYSTEMS OPERATIONS (PS)	73	82	92	105	120	137	160	183	14%
SYSTEMS OPERATIONS (PROC)	628	651	769	910	1079	1278	1516	1799	18%
SYSTEMS INTEGRATION	139	153	174	199	228	267	321	373	16%
SOFTWARE DEVELOPMENT	74	83	94	106	122	142	168	193	15%
DESIGN/INTEGRATION	23	25	29	33	39	45	57	67	18%
PROJECT MGMT/CONSULTING	28	31	35	41	47	56	69	82	17%
EDUCATION/TRAINING	7	7	8	10	10	12	14	16	14%
OPERATIONS/MAINTENANCE	7	7	8	10	10	12	14	16	14%
TOTAL	1320	1425	1641	1897	2198	2554	2987	3476	16%

TABLE 6

IBM FORECAST WITH INFLATION
BY INDUSTRY AND SUB-MODE OF DELIVERY

IBM SEGMENTATION	1989 ($M)	1990 ($M)	1991 ($M)	1992 ($M)	1993 ($M)	1994 ($M)	1995 ($M)	1996 ($M)	'90-'95 CAGR
HIGHER EDUCATION									
PROFESSIONAL SERVICES	321	364	413	470	534	608	698	797	14%
CONSULTING	64	74	87	101	117	136	159	185	16%
EDUCATION/TRAINING	41	47	53	59	67	75	85	96	13%
SOFTWARE DEVELOPMENT	177	198	224	253	287	325	368	417	13%
SYSTEMS OPERATIONS (PS)	39	44	49	56	63	72	87	99	14%
SYSTEMS OPERATIONS (PROC)	115	134	155	182	215	255	311	371	18%
SYSTEMS INTEGRATION	60	69	80	95	116	145	179	217	21%
SOFTWARE DEVELOPMENT	31	37	43	49	60	76	93	112	21%
DESIGN/INTEGRATION	11	13	14	17	21	26	33	41	22%
PROJECT MGMT/CONSULTING	13	15	18	21	27	32	41	51	23%
EDUCATION/TRAINING	2	3	3	4	4	5	6	7	18%
OPERATIONS/MAINTENANCE	2	3	3	4	4	5	6	7	18%
TOTAL	496	567	648	747	865	1008	1188	1385	16%
MEDIA									
PROFESSIONAL SERVICES	641	715	793	883	999	1140	1312	1485	13%
CONSULTING	143	164	186	211	244	284	334	386	15%
EDUCATION/TRAINING	92	103	113	124	139	157	179	200	12%
SOFTWARE DEVELOPMENT	396	436	480	531	597	678	775	871	12%
SYSTEMS OPERATIONS (PS)	10	12	14	16	18	21	24	28	15%
SYSTEMS OPERATIONS (PROC)	52	64	79	97	118	145	178	219	23%
SYSTEMS INTEGRATION	80	99	120	145	177	224	286	354	24%
SOFTWARE DEVELOPMENT	41	51	63	75	90	115	146	180	23%
DESIGN/INTEGRATION	16	20	24	29	36	46	59	74	24%
PROJECT MGMT/CONSULTING	17	20	24	29	37	47	60	75	24%
EDUCATION/TRAINING	3	4	5	6	7	9	11	13	23%
OPERATIONS/MAINTENANCE	3	3	4	5	6	8	10	12	24%
TOTAL	773	878	991	1124	1294	1509	1776	2058	15%

TABLE 6

IBM FORECAST WITH INFLATION
BY INDUSTRY AND SUB-MODE OF DELIVERY

IBM SEGMENTATION	1989 ($M)	1990 ($M)	1991 ($M)	1992 ($M)	1993 ($M)	1994 ($M)	1995 ($M)	1996 ($M)	'90-'95 CAGR
SCHOOLS									
PROFESSIONAL SERVICES	162	183	208	237	269	307	352	402	14%
CONSULTING	33	38	44	51	60	69	81	94	16%
EDUCATION/TRAINING	21	24	27	30	34	38	43	49	13%
SOFTWARE DEVELOPMENT	90	101	114	129	146	165	187	212	13%
SYSTEMS OPERATIONS (PS)	17	20	22	26	29	33	41	47	15%
SYSTEMS OPERATIONS (PROC)	49	58	68	81	97	118	144	174	20%
SYSTEMS INTEGRATION	25	29	34	41	50	63	79	97	22%
SOFTWARE DEVELOPMENT	13	15	18	21	25	32	40	49	21%
DESIGN/INTEGRATION	4	5	6	7	9	11	15	18	23%
PROJECT MGMT/CONSULTING	6	7	8	10	12	15	19	24	24%
EDUCATION/TRAINING	1	1	1	2	2	2	2	3	19%
OPERATIONS/MAINTENANCE	1	1	1	2	2	2	2	3	19%
TOTAL	235	270	310	359	417	487	575	672	16%
STATE/LOCAL GOV'T									
PROFESSIONAL SERVICES	1636	1860	2119	2422	2771	3170	3649	4184	14%
CONSULTING	334	389	454	530	618	720	842	983	17%
EDUCATION/TRAINING	216	245	276	312	353	398	450	509	13%
SOFTWARE DEVELOPMENT	923	1038	1174	1332	1512	1718	1951	2217	13%
SYSTEMS OPERATIONS (PS)	163	188	214	248	288	333	406	475	17%
SYSTEMS OPERATIONS (PROC)	403	490	595	725	890	1094	1343	1647	22%
SYSTEMS INTEGRATION	173	212	251	298	368	468	602	743	23%
SOFTWARE DEVELOPMENT	89	110	131	153	186	238	304	374	23%
DESIGN/INTEGRATION	29	35	42	50	63	80	104	129	24%
PROJECT MGMT/CONSULTING	45	55	63	77	96	124	161	200	24%
EDUCATION/TRAINING	5	6	8	9	11	13	17	20	21%
OPERATIONS/MAINTENANCE	5	6	8	9	11	13	17	20	21%
TOTAL	2212	2562	2965	3446	4029	4731	5595	6575	17%

TABLE 6

IBM FORECAST WITH INFLATION
BY INDUSTRY AND SUB-MODE OF DELIVERY

IBM SEGMENTATION	1989 ($M)	1990 ($M)	1991 ($M)	1992 ($M)	1993 ($M)	1994 ($M)	1995 ($M)	1996 ($M)	'90-'95 CAGR
TRANSPORTATION									
PROFESSIONAL SERVICES	162	182	205	229	259	292	330	373	13%
CONSULTING	36	42	48	55	64	73	85	98	15%
EDUCATION/TRAINING	23	26	29	33	36	41	45	51	11%
SOFTWARE DEVELOPMENT	100	112	125	139	156	175	196	220	12%
SYSTEMS OPERATIONS (PS)	2	2	2	3	3	3	4	5	19%
SYSTEMS OPERATIONS (PROC)	36	41	48	55	63	73	85	99	16%
SYSTEMS INTEGRATION	69	75	81	91	111	137	181	217	19%
SOFTWARE DEVELOPMENT	36	40	41	46	56	70	90	106	18%
DESIGN/INTEGRATION	13	13	15	18	22	28	36	44	22%
PROJECT MGMT/CONSULTING	15	16	18	21	26	32	43	53	22%
EDUCATION/TRAINING	3	3	4	4	4	5	7	8	15%
OPERATIONS/MAINTENANCE	3	3	3	3	3	3	5	6	15%
TOTAL	266	297	334	375	433	503	597	689	15%
UTILITIES									
PROFESSIONAL SERVICES	190	201	217	240	267	297	330	365	10%
CONSULTING	42	45	51	57	65	73	83	94	13%
EDUCATION/TRAINING	27	29	31	34	37	41	45	49	9%
SOFTWARE DEVELOPMENT	117	121	131	144	158	175	193	212	10%
SYSTEMS OPERATIONS (PS)	4	5	5	6	7	8	9	10	13%
SYSTEMS OPERATIONS (PROC)	29	33	37	42	48	55	66	76	15%
SYSTEMS INTEGRATION	166	183	203	228	261	303	353	403	14%
SOFTWARE DEVELOPMENT	82	91	100	113	129	150	175	200	14%
DESIGN/INTEGRATION	29	33	37	41	47	55	64	73	14%
PROJECT MGMT/CONSULTING	38	42	47	53	61	71	83	95	15%
EDUCATION/TRAINING	9	10	12	12	14	17	18	21	13%
OPERATIONS/MAINTENANCE	7	7	8	8	10	11	12	14	13%
TOTAL	385	416	457	510	576	655	748	844	12%

TABLE 6

IBM FORECAST WITH INFLATION
BY INDUSTRY AND SUB-MODE OF DELIVERY

IBM SEGMENTATION	1989 ($M)	1990 ($M)	1991 ($M)	1992 ($M)	1993 ($M)	1994 ($M)	1995 ($M)	1996 ($M)	'90-'95 CAGR
WHOLESALE DISTRIBUTION									
PROFESSIONAL SERVICES	428	474	516	560	614	676	744	816	9%
CONSULTING	92	104	116	128	143	161	180	201	12%
EDUCATION/TRAINING	59	66	71	76	82	89	96	104	8%
SOFTWARE DEVELOPMENT	253	277	300	323	351	383	417	454	9%
SYSTEMS OPERATIONS (PS)	23	27	30	33	37	43	50	57	13%
SYSTEMS OPERATIONS (PROC)	71	85	101	122	146	177	215	260	20%
SYSTEMS INTEGRATION	103	117	133	157	183	223	277	331	19%
SOFTWARE DEVELOPMENT	54	61	70	81	95	115	140	166	18%
DESIGN/INTEGRATION	21	23	27	31	36	45	57	69	20%
PROJECT MGMT/CONSULTING	19	23	26	30	37	44	57	69	20%
EDUCATION/TRAINING	4	5	6	7	8	9	11	13	16%
OPERATIONS/MAINTENANCE	4	5	6	7	8	9	11	13	16%
TOTAL	601	676	750	838	943	1075	1236	1407	13%
RETAIL DISTRIBUTION									
PROFESSIONAL SERVICES	608	676	738	814	911	1032	1179	1321	12%
CONSULTING	135	154	172	194	222	256	299	342	14%
EDUCATION/TRAINING	87	97	105	114	127	142	160	177	11%
SOFTWARE DEVELOPMENT	373	411	445	488	542	611	693	771	11%
SYSTEMS OPERATIONS (PS)	12	14	15	18	20	23	26	30	13%
SYSTEMS OPERATIONS (PROC)	96	119	146	180	221	273	337	416	23%
SYSTEMS INTEGRATION	144	183	231	287	362	463	602	766	27%
SOFTWARE DEVELOPMENT	74	96	121	150	188	239	312	396	27%
DESIGN/INTEGRATION	30	37	47	58	74	97	126	161	28%
PROJECT MGMT/CONSULTING	29	37	44	57	72	92	121	154	27%
EDUCATION/TRAINING	5	7	9	12	14	18	22	28	26%
OPERATIONS/MAINTENANCE	5	7	9	12	14	18	22	28	26%
TOTAL	848	978	1115	1281	1493	1767	2118	2502	17%

TABLE 6

IBM FORECAST WITH INFLATION
BY INDUSTRY AND SUB-MODE OF DELIVERY

IBM SEGMENTATION	1989 ($M)	1990 ($M)	1991 ($M)	1992 ($M)	1993 ($M)	1994 ($M)	1995 ($M)	1996 ($M)	'90-'95 CAGR
FINANCE									
PROFESSIONAL SERVICES	1785	1870	2006	2207	2467	2776	3128	3475	11%
CONSULTING	367	394	430	482	548	628	721	815	13%
EDUCATION/TRAINING	237	249	262	284	313	347	386	422	9%
SOFTWARE DEVELOPMENT	1015	1051	1113	1211	1341	1497	1672	1837	10%
SYSTEMS OPERATIONS (PS)	165	176	201	231	265	304	349	401	15%
SYSTEMS OPERATIONS (PROC)	1082	1251	1433	1645	1890	2169	2644	3076	16%
SYSTEMS INTEGRATION	129	163	203	254	328	432	566	728	28%
SOFTWARE DEVELOPMENT	61	77	96	117	151	201	262	335	28%
DESIGN/INTEGRATION	29	37	45	58	77	100	132	171	29%
PROJECT MGMT/CONSULTING	28	35	44	57	73	96	127	165	29%
EDUCATION/TRAINING	5	7	9	11	13	17	22	29	27%
OPERATIONS/MAINTENANCE	5	7	9	11	13	17	22	29	27%
TOTAL	2996	3284	3642	4107	4684	5377	6338	7279	14%
INSURANCE									
PROFESSIONAL SERVICES	1375	1548	1736	1968	2255	2588	2974	3396	14%
CONSULTING	288	333	383	446	523	614	723	846	17%
EDUCATION/TRAINING	186	210	234	262	298	339	387	438	13%
SOFTWARE DEVELOPMENT	795	888	992	1120	1278	1464	1677	1907	14%
SYSTEMS OPERATIONS (PS)	106	117	127	141	156	170	187	206	10%
SYSTEMS OPERATIONS (PROC)	622	682	748	813	886	973	1097	1209	10%
SYSTEMS INTEGRATION	90	109	132	168	211	264	340	429	26%
SOFTWARE DEVELOPMENT	44	55	65	81	106	133	163	203	24%
DESIGN/INTEGRATION	19	23	28	37	46	55	74	94	26%
PROJECT MGMT/CONSULTING	19	21	28	36	44	54	73	94	28%
EDUCATION/TRAINING	4	5	6	7	8	11	15	18	24%
OPERATIONS/MAINTENANCE	4	5	6	7	8	11	15	18	24%
TOTAL	2087	2339	2616	2949	3352	3825	4411	5034	14%

TABLE 6

IBM FORECAST WITH INFLATION
BY INDUSTRY AND SUB-MODE OF DELIVERY

IBM SEGMENTATION	1989 ($M)	1990 ($M)	1991 ($M)	1992 ($M)	1993 ($M)	1994 ($M)	1995 ($M)	1996 ($M)	'90-'95 CAGR
SECURITIES									
PROFESSIONAL SERVICES	387	405	434	478	534	601	677	752	11%
CONSULTING	80	85	93	104	119	136	156	176	13%
EDUCATION/TRAINING	51	54	57	61	68	75	83	91	9%
SOFTWARE DEVELOPMENT	220	228	241	262	290	324	362	397	10%
SYSTEMS OPERATIONS (PS)	36	38	44	50	58	66	76	88	15%
SYSTEMS OPERATIONS (PROC)	237	274	314	361	415	476	580	675	16%
SYSTEMS INTEGRATION	28	35	43	54	70	92	121	156	28%
SOFTWARE DEVELOPMENT	13	17	21	25	32	43	56	72	28%
DESIGN/INTEGRATION	6	8	10	12	16	21	28	37	29%
PROJECT MGMT/CONSULTING	6	8	9	12	16	21	27	35	29%
EDUCATION/TRAINING	1	1	2	2	3	4	5	6	27%
OPERATIONS/MAINTENANCE	1	1	2	2	3	4	5	6	27%
TOTAL	652	714	792	893	1019	1169	1378	1583	14%
FEDERAL GOVERNMENT									
PROFESSIONAL SERVICES	2929	3149	3344	3550	3767	3996	4247	4527	6%
CONSULTING	469	506	537	571	607	648	694	741	7%
EDUCATION/TRAINING	303	319	327	336	347	358	371	384	3%
SOFTWARE DEVELOPMENT	1296	1348	1390	1435	1486	1546	1609	1670	4%
SYSTEMS OPERATIONS (PS)	860	977	1090	1208	1327	1444	1572	1733	10%
SYSTEMS OPERATIONS (PROC)	258	301	347	403	455	482	513	572	11%
SYSTEMS INTEGRATION	1183	1360	1538	1742	1977	2244	2553	2902	13%
SOFTWARE DEVELOPMENT	555	706	796	901	1022	1159	1317	1495	13%
DESIGN/INTEGRATION	256	227	255	288	325	368	416	471	13%
PROJECT MGMT/CONSULTING	283	328	372	423	482	549	627	715	14%
EDUCATION/TRAINING	49	50	51	52	52	54	55	56	2%
OPERATIONS/MAINTENANCE	39	50	64	78	95	114	138	165	22%
TOTAL	4370	4810	5229	5695	6199	6722	7312	8001	9%

TABLE 6

IBM FORECAST WITH INFLATION
BY INDUSTRY AND SUB-MODE OF DELIVERY

IBM SEGMENTATION	1989 ($M)	1990 ($M)	1991 ($M)	1992 ($M)	1993 ($M)	1994 ($M)	1995 ($M)	1996 ($M)	'90-'95 CAGR
GRAND TOTAL									
PROFESSIONAL SERVICES	16815	18557	20409	22641	25354	28586	32429	36410	12%
CONSULTING	3444	3891	4371	4953	5664	6524	7568	8677	14%
EDUCATION/TRAINING	2224	2453	2663	2915	3236	3607	4050	4494	11%
SOFTWARE DEVELOPMENT	9516	10372	11307	12451	13856	15559	17543	19559	11%
SYSTEMS OPERATIONS (PS)	1631	1841	2068	2322	2598	2897	3268	3680	12%
SYSTEMS OPERATIONS (PROC)	4361	4999	5815	6773	7893	9199	11007	12964	17%
SYSTEMS INTEGRATION	2897	3426	4004	4695	5587	6763	8280	9967	19%
SOFTWARE DEVELOPMENT	1433	1771	2067	2404	2850	3451	4204	5039	19%
DESIGN/INTEGRATION	590	625	732	865	1042	1270	1570	1906	20%
PROJECT MGMT/CONSULTING	650	766	888	1056	1264	1528	1882	2275	20%
EDUCATION/TRAINING	120	136	156	177	199	234	278	328	15%
OPERATIONS/MAINTENANCE	105	129	160	193	231	281	346	419	22%
TOTAL	24073	26981	30228	34109	38834	44548	51716	59341	14%

TABLE 7

IBM FORECAST WITH INFLATION
BY INDUSTRY GROUP AND SUB-MODE OF DELIVERY

SECTOR	1989 ($M)	1990 ($M)	1991 ($M)	1992 ($M)	1993 ($M)	1994 ($M)	1995 ($M)	1996 ($M)	'90-'95 CAGR
INDUSTRIAL									
PROFESSIONAL SERVICES	4920	5486	6045	6727	7589	8677	10018	11322	13%
CONSULTING	1092	1249	1408	1602	1845	2151	2537	2928	15%
EDUCATION/TRAINING	705	787	858	942	1054	1189	1358	1517	12%
SOFTWARE DEVELOPMENT	3019	3329	3642	4026	4512	5131	5882	6601	12%
SYSTEMS OPERATIONS (PS)	103	121	137	157	179	205	240	276	15%
SYSTEMS OPERATIONS (PROC)	648	776	927	1105	1310	1561	1894	2274	20%
SYSTEMS INTEGRATION	428	540	663	802	984	1233	1558	1933	24%
SOFTWARE DEVELOPMENT	217	277	343	410	497	625	791	980	23%
DESIGN/INTEGRATION	88	110	133	161	202	255	321	400	24%
PROJECT MGMT/CONSULTING	87	108	131	162	202	253	320	398	24%
EDUCATION/TRAINING	18	23	29	34	42	51	63	78	23%
OPERATIONS/MAINTENANCE	17	22	28	34	41	50	62	77	23%
SECTOR TOTAL	5995	6802	7635	8633	9884	11471	13469	15529	15%

TABLE 7

IBM FORECAST WITH INFLATION
BY INDUSTRY GROUP AND SUB-MODE OF DELIVERY

SECTOR	1989 ($M)	1990 ($M)	1991 ($M)	1992 ($M)	1993 ($M)	1994 ($M)	1995 ($M)	1996 ($M)	'90-'95 CAGR
ACADEMIC,GENERAL & PUBLIC									
PROFESSIONAL SERVICES	4384	4949	5591	6337	7218	8240	9464	10801	14%
CONSULTING	921	1066	1232	1427	1658	1930	2257	2627	16%
EDUCATION/TRAINING	594	672	750	840	947	1067	1208	1361	12%
SOFTWARE DEVELOPMENT	2544	2841	3186	3586	4056	4603	5232	5922	13%
SYSTEMS OPERATIONS (PS)	325	371	422	485	556	641	767	890	16%
SYSTEMS OPERATIONS (PROC)	1347	1510	1798	2145	2572	3088	3727	4483	20%
SYSTEMS INTEGRATION	793	919	1060	1232	1472	1812	2263	2724	20%
SOFTWARE DEVELOPMENT	414	482	557	639	759	937	1163	1393	19%
DESIGN/INTEGRATION	140	162	188	219	267	329	416	505	21%
PROJECT MGMT/CONSULTING	177	207	234	279	339	419	531	645	21%
EDUCATION/TRAINING	34	38	45	52	59	71	84	99	17%
OPERATIONS/MAINTENANCE	28	31	36	43	49	57	70	83	18%
SECTOR TOTAL	6524	7379	8449	9714	11261	13141	15454	18007	16%

TABLE 7

IBM FORECAST WITH INFLATION
BY INDUSTRY GROUP AND SUB-MODE OF DELIVERY

SECTOR	1989 ($M)	1990 ($M)	1991 ($M)	1992 ($M)	1993 ($M)	1994 ($M)	1995 ($M)	1996 ($M)	'90-'95 CAGR
SERVICES									
PROFESSIONAL SERVICES	4583	4972	5429	6027	6780	7672	8701	9760	12%
CONSULTING	962	1071	1194	1354	1554	1794	2079	2380	14%
EDUCATION/TRAINING	621	675	728	797	888	992	1113	1233	11%
SOFTWARE DEVELOPMENT	2657	2855	3090	3404	3802	4279	4820	5365	11%
SYSTEMS OPERATIONS (PS)	343	372	417	473	536	606	688	781	13%
SYSTEMS OPERATIONS (PROC)	2108	2411	2743	3120	3557	4068	4873	5636	15%
SYSTEMS INTEGRATION	493	607	743	920	1154	1474	1907	2409	26%
SOFTWARE DEVELOPMENT	246	306	372	454	572	730	934	1172	25%
DESIGN/INTEGRATION	106	127	156	196	249	318	417	531	27%
PROJECT MGMT/CONSULTING	102	123	151	192	241	308	405	517	27%
EDUCATION/TRAINING	20	25	32	39	46	59	75	94	24%
OPERATIONS/MAINTENANCE	20	25	32	39	46	59	75	94	24%
SECTOR TOTAL	7184	7991	8915	10068	11490	13214	15481	17805	14%

TABLE 7

IBM FORECAST WITH INFLATION
BY INDUSTRY GROUP AND SUB-MODE OF DELIVERY

SECTOR	1989 ($M)	1990 ($M)	1991 ($M)	1992 ($M)	1993 ($M)	1994 ($M)	1995 ($M)	1996 ($M)	'90-'95 CAGR
FEDERAL GOVERNMENT									
PROFESSIONAL SERVICES	2929	3149	3344	3550	3767	3996	4247	4527	6%
CONSULTING	469	506	537	571	607	648	694	741	7%
EDUCATION/TRAINING	303	319	327	336	347	358	371	384	3%
SOFTWARE DEVELOPMENT	1296	1348	1390	1435	1486	1546	1609	1670	4%
SYSTEMS OPERATIONS (PS)	860	977	1090	1208	1327	1444	1572	1733	10%
SYSTEMS OPERATIONS (PROC)	258	301	347	403	455	482	513	572	11%
SYSTEMS INTEGRATION	1183	1360	1538	1742	1977	2244	2553	2902	13%
SOFTWARE DEVELOPMENT	555	706	796	901	1022	1159	1317	1495	13%
DESIGN/INTEGRATION	256	227	255	288	325	368	416	471	13%
PROJECT MGMT/CONSULTING	283	328	372	423	482	549	627	715	14%
EDUCATION/TRAINING	49	50	51	52	52	54	55	56	2%
OPERATIONS/MAINTENANCE	39	50	64	78	95	114	138	165	22%
SECTOR TOTAL	4370	4810	5229	5695	6199	6722	7312	8001	9%

TABLE 7

IBM FORECAST WITH INFLATION
BY INDUSTRY GROUP AND SUB-MODE OF DELIVERY

SECTOR	1989 ($M)	1990 ($M)	1991 ($M)	1992 ($M)	1993 ($M)	1994 ($M)	1995 ($M)	1996 ($M)	'90-'95 CAGR
ALL SECTORS									
PROFESSIONAL SERVICES	16815	18557	20409	22641	25354	28586	32429	36410	12%
CONSULTING	3444	3891	4371	4953	5664	6524	7568	8677	14%
EDUCATION/TRAINING	2224	2453	2663	2915	3236	3607	4050	4494	11%
SOFTWARE DEVELOPMENT	9516	10372	11307	12451	13856	15559	17543	19559	11%
SYSTEMS OPERATIONS (PS)	1631	1841	2068	2322	2598	2897	3268	3680	12%
SYSTEMS OPERATIONS (PROC)	4361	4999	5815	6773	7893	9199	11007	12964	17%
SYSTEMS INTEGRATION	2897	3426	4004	4695	5587	6763	8280	9967	19%
SOFTWARE DEVELOPMENT	1433	1771	2067	2404	2850	3451	4204	5039	19%
DESIGN/INTEGRATION	590	625	732	865	1042	1270	1570	1906	20%
PROJECT MGMT/CONSULTING	650	766	888	1056	1264	1528	1882	2275	20%
EDUCATION/TRAINING	120	136	156	177	199	234	278	328	15%
OPERATIONS/MAINTENANCE	105	129	160	193	231	281	346	419	22%
GRAND TOTAL - ALL SECTORS	24073	26981	30228	34109	38834	44548	51716	59341	14%

TABLE 8

IBM FORECAST WITH INFLATION
BY INDUSTRY GROUP

SECTOR	1989 ($M)	1990 ($M)	1991 ($M)	1992 ($M)	1993 ($M)	1994 ($M)	1995 ($M)	1996 ($M)	'90-'95 CAGR
INDUSTRIAL	5995	6802	7635	8633	9884	11471	13469	15529	15%
ACADEMIC,GENERAL & PUBLIC	6524	7379	8449	9714	11261	13141	15454	18007	16%
SERVICES	7184	7991	8915	10068	11490	13214	15481	17805	14%
FEDERAL GOVERNMENT	4370	4810	5229	5695	6199	6722	7312	8001	9%
GRAND TOTAL - ALL SECTORS	24073	26981	30228	34109	38834	44548	51716	59341	14%

Appendix: Forecast Reconciliation

Appendix: Forecast Reconciliation

A

Reconciliation of Professional Services Industry

Data Base Reconciliation, 1988-1989

The 1988 report forecast a 1989 professional services industry totalling $17,558 million. Actual 1989 professional services industry size was $15,184 million, a difference of 16% which reflects the shift of many projects in 1989 to the systems integration mode.

The five-year growth rate changed from 14% to 12%, reflecting the following trends:

- Significantly slower economic growth in the forecast period.
- A small shift in consulting and software development toward systems integration-based services.
- Greater use of system software products/software engineering and application software products which make use of software engineering for customization.

B

Reconciliation of Systems Integration Market

The commercial and federal systems integration markets saw a variety of forces affecting the rates of growth since the INPUT forecast for 1989. The 1989 actual performance of half of the vertical industries deviated by more than 2% from the 1989 forecast. In 1994, about half of the industries will vary from the 1989 forecast by more than 3% due to slower growth of the economy, government fiscal restraint, ripple effects of the reductions in defense outlays, increased competition from Europe and the Pacific Rim, and narrowing margins in most commercial sectors.

C

Reconciliation of Systems Operations Market

The original systems operations forecast for 1989 was $5,940 million; the actual 1989 level was $6,275 million. However, INPUT has reviewed the marketplace for conformance definitions of systems operation. This has led to a reduction in the 1990 forecasts for systems operations in Health and Banking/Finance.

Reorganization of hospital and healthcare facilities, particularly support activities, has led to a reassessment of work done by vendors and a reduction of the systems operations professional services forecasts for 1990 from $121 to $50 million. Mergers and assumption of vendor systems operations work has led to a reduction in the 1990 forecast of systems operations professional services in banking and finance from $402 to $213 million.

Reasons for continued growth in systems operations overall include the shift away from ad hoc processing services toward more integrated processing of a firm's suite of applications. This shift requires the kind of long-term commitment which is the basis of the systems operations business.

D

Reconciliation of Professional Services Market by Submodes

The data discussed in this section can be found in the report *U.S. Professional Services Markets, 1990-1995*.

1. Consulting

In 1988, INPUT forecast the size of the 1989 professional services consulting submode at $3,620 million, compared with the actual 1989 figure of $3,444 million, reflecting an actual growth rate of 14% versus a forecast rate of 20%.

The primary reason for the slower growth was the reduction in growth rate for the national economy as well as the impact of systems integration on professional services, a trend identified by INPUT in a 1988 report, *Impact of Systems Integration on Professional Services*. Consulting services are sometimes provided by systems integration vendors as part of the SI process.

The five-year forecast growth rate for consulting slowed from 18% to 14% because of the following factors:

- Slower growth of the economy.
- Shift of consulting services to part of systems integration and systems operations projects, rather than as standalone professional services projects.
- Expected crowding of the market and lack of vendor service differentiation, resulting in increased price competition and decreased delivery mode revenues.

2. Education and Training

In 1989, the education and training submode grew at 22% to $2,224 million, compared with a 1989 forecast growth of 18% and market of $2,145 million.

The faster growth can be attributed to the following factors:

- Increasing direct use of information services by user personnel.
- Increased training and education to support greater usage of telecommunications, open systems platforms and software engineering.
- Reduced use of education and training in 1988.

The education and training forecast five-year growth rate will decrease from 14% to 11% due to:

- Tightening user organization budgets, which is forcing IS-related education and training expenses to be cut or deferred.
- Computer-based training replacing some customized training.
- Dramatically slower growth in IS staffs.
- The shifting from professional services-based education and training to systems integration-based education and training.

3. Software Development

The forecast growth rate for software development in 1989 was 16%, to a level of $10,200 million. The actual growth rate was 8% to a level of $9,516 million in 1989. A shift of work to systems integration is partially responsible.

The five-year forecast growth rate for software development decreased from 13% to 11%. The prime inhibiting factor is the slower economic growth forecast for the next five years.

4. Systems Operations.

The 1989 user expenditures for professional services systems operations exceeded the forecast by $335 million for the following reasons:

- Greater spending than expected by the federal and state and local governments for systems operations.

- Surveys conducted by INPUT in 1989 identified additional user expenditures and vendor revenues than previously reported. The user expenditures are being reviewed further, however, to ensure that they conform to definitions of systems operations.

The five-year forecast growth rate for systems operations has been reduced from 17% to 16%.

E

Reconciliation by Industry Sector

1. Reported Industry Sector Revenues in 1989

The differences between INPUT's 1989 forecast of the size of each industry sector in professional services and actual figures for 1989 are minor except for the utilities, retail distribution, education, and federal government markets. The reduction in utilities is due to the reclassification of large projects to the systems integration mode; retail distribution revenues fell as the retail business worsened; federal government expenditures fell as defense activity was curtailed and expenditures in the education market temporarily surged to reflect expanded computing and network installations. The actual data is found in the table following this text.

2. Industry Sector Forecasts

Forecast growth rates for most information service industry sectors changed as the slower economic growth rate affected every sector. Only those sectors that had additional factors to consider are discussed here.

a. Discrete Manufacturing

The growth rate slowed from 16% to 13% due to the following factors:

- A decline in the rate of replacement of batch-oriented systems, because the majority have converted to on-line environments.
- A slowdown in MAP/TOP implementations.
- The shift from professional services engagements to systems integration projects in networks, manufacturing resource planning (MRP II), and accounting applications.

b. Process Manufacturing

INPUT reduced the forecast growth rate in process manufacturing from 17% to 14% because of:

- The effects of business cycles and eroding gross profit margins on IS spending in three key process manufacturing SICs - petroleum, chemicals, and primary metals.

- Some changing from professional services engagements to systems integration projects in real-time computing and integration of the manufacturing environment.

- The negative effects of process manufacturing mergers and acquisitions on overall IS expenditures.

c. Utilities

The forecast growth rate was reduced from 13% to 11% primarily as a result of the reclassification of large energy projects to the systems integration mode.

d. Wholesale Distribution

The forecast growth rate for wholesale distribution decreased from 13% to 9% due to the following factors:

- The continuing drop in retail sales through 1989 which reduced wholesale business.

- Shift by large wholesale organizations from professional services to systems integration projects, especially ones involving EDI and data communications.

e. Retail Distribution

The forecast growth rate in professional services for retail distribution decreased from 15% to 10% due to the following:

- Reduced expenditures for retail purchases and lower profits for retailers led to less funds available for professional services.

- Aggressive shifts by retailers of all sizes toward more specific systems integration projects involving EDI, bar codes, scanners, networking, and other new technologies to reduce costs.

f. Banking and Finance

The forecast growth rate was reduced from 18% to 11% as a result of the dramatic downturn in bank revenues and margins, which led to significant curtailment of professional services expenditures.

g. Education

The forecast growth rate has fallen from 15% to 13% reflecting tight economic conditions facing many schools as well as a diversion of expenditures to systems integration vendors.

Appendix: INPUT-Defined Industry Sectors

Industry Sector Definitions

Industry Sector	SIC Code	Description
Discrete Manufacturing	23xx	Apparel and other finished products
	25xx	Furniture and fixtures
	27xx	Printing, publishing and allied industries
	31xx	Leather and leather products
	34xx	Fabricated metal products, except machinery and transportation equipment
	35xx	Industrial and commercial machinery and computer equipment
	36xx	Electronic and other electrical equipment and components, except computer equipment
	37xx	Transportation equipment
	38xx	Instruments; photo/med/optical goods; watches/clocks
	39xx	Miscellaneous manufacturing industry
Process Manufacturing	10xx	Metal mining
	12xx	Coal mining
	13xx	Oil and gas extraction
	14xx	Mining/quarrying nonmetalic minerals
	20xx	Food and kindred products
	21xx	Tobacco products
	22xx	Textile mill products
	24xx	Lumber and wood products, except furniture
	26xx	Paper and allied products
	28xx	Chemicals and allied products
	29xx	Petroleum refining and related industries
	30xx	Rubber and miscellaneous plastic products
	32xx	Stone, clay, glass and concrete products
	33xx	Primary metal industries
Transportation Services	40xx	Railroad transport
	41xx	Public transit/transport
	42xx	Motor freight transport/warehousing
	43xx	U.S. Postal Service
	44xx	Water transportation
	45xx	Air transportation (except airline reservation services in 4512)
	46xx	Pipelines, except natural gas
	47xx	Transportation services (except 472x, arrangement of passenger transportation)

Industry Sector Definitions

Industry Sector	SIC Code	Description
Utilities	49xx	Electric, gas and sanitary services
Telecommunications	48xx	Communications
Retail Distribution	52xx	Building materials
	53xx	General merchandise stores
	54xx	Food stores
	55xx	Automotive dealers, gas stations
	56xx	Apparel and accessory stores
	57xx	Home furniture, furnishings and accessory stores
	58xx	Eating and drinking places
	59xx	Miscellaneous retail
Wholesale Distribution	50xx	Wholesale trade - durable goods
	51xx	Wholesale trade - nondurable goods
Banking and Finance	60xx	Depositary institutions
	61xx	Nondepositary institutions
	62xx	Security and commodity brokers, dealers, exchanges and services
	67xx	Holding and other investment offices
Insurance	63xx	Insurance carriers
	64xx	Insurance agents, brokers and services
Health Services	80xx	Health services
Education	82xx	Educational services

Industry Sector Definitions

Industry Sector	SIC Code	Description
Business and Technical Services	65xx	Real estate
	73xx	Business services (except hotel reservation services in 7389)
	81xx	Legal services
	87xx	Engineering, accounting, research, management, and related services
	89xx	Miscellaneous services
Federal Government	9xxx	
State and Local Government	9xxx	
Miscellaneous Industries	01xx	Agricultural production - crops
	02xx	Agricultural production - livestock/animals
	07xx	Agricultural services
	08xx	Forestry
	09xx	Fishing, hunting and trapping
	15xx	Building construction - general contractors, operative builders
	16xx	Heavy construction - contractors
	17xx	Construction - special trade contractors
Personal/Consumer Services	4512x	Airline reservation services
	472x	Arrangement of passenger transportation (travel agencies)
	70xx	Hotels, rooming houses, camps, and other lodging places
	72xx	Personal services
	7389x	Hotel reservation services
	75xx	Automotive repair, services and parking
	76xx	Miscellaneous repair services
	78xx	Motion pictures
	79xx	Amusement and recreation services
	83xx	Social services
	84xx	Museums, art galleries, and botanical/zoological gardens
	86xx	Membership organizations
	88xx	Private households

Appendix: IBM-Defined Industry Sectors

TABLE I - SIC CODES BY INDUSTRY CLASS

IN CL	SIC CODE	DESCRIPTION
A1		MEDIUM/SMALL TELEPHONE COMPANIES
	4813	MEDIUM / SMALL TELEPHONE COMPANIES
A2		AMERICAN TELEPHONE AND TELEGRAPH
	481A	AMERICAN TELEPHONE AND TELEGRAPH (AT&T)
A3		LARGE TELEPHONE COMPANIES
	481B	LARGE TELEPHONE COMPANIES
A4		COMMON CARRIERS
	4822	COMMON CARRIERS
A5		CABLE TV AND MISCELLANEOUS COMPANIES
	4812	RADIOTELEPHONE COMMUNICATIONS
	4841	CABLE AND OTHER PAY TV SERVICES
	4899	COMMUNICATION SERVICES, NEC
BC		CONSULTANTS - COMPUTER SERVICERS
	738C	CONSULTANTS - COMPUTER SERVICERS
BD		DISTRIBUTION - COMPUTER SERVICERS
	738D	DISTRIBUTION - COMPUTER SERVICERS
BE		HIGHER EDUCATION - COMPUTER SERVICERS
	738E	EDUCATION - COMPUTER SERVICERS
BF		FINANCE/SECURITIES - COMPUTER SERVICERS
	738F	FINANCE/SECURITIES - COMPUTER SERVICERS
BG		STATE AND LOCAL - COMPUTER SERVICERS
	738G	STATE AND LOCAL - COMPUTER SERVICERS
BH		MEDICAL - COMPUTER SERVICERS
	738H	MEDICAL - COMPUTER SERVICERS
BK		MEDIA - COMPUTER SERVICERS
	738K	MEDIA - COMPUTER SERVICERS
BM		MANUFACTURING - COMPUTER SERVICERS
	738M	MANUFACTURING - COMPUTER SERVICERS
BN		INSURANCE - COMPUTER SERVICERS
	738N	INSURANCE - COMPUTER SERVICERS
BP		PROCESS - COMPUTER SERVICERS
	738P	PROCESS - COMPUTER SERVICERS
BR		POINT OF SALE VALUE ADDED DISTRIBUTORS
	737R	POINT OF SALE VALUE ADDED DISTRIBUTORS

TABLE I - SIC CODES BY INDUSTRY CLASS

IN CL	SIC CODE	DESCRIPTION
BT		TRANSPORTATION - COMPUTER SERVICERS
	738T	TRANSPORTATION - COMPUTER SERVICERS
BU		PUBLIC UTILITIES - COMPUTER SERVICERS
	738U	PUBLIC UTILITIES - COMPUTER SERVICERS
BY		FEDERAL - COMPUTER SERVICERS
	738Y	FEDERAL - COMPUTER SERVICERS
B1		SERVICE BUREAUS
	7374	DATA PROCESSING AND PREPARATION
B2		INFORMATION SYSTEMS CONSULTANTS
	7379	COMPUTER CONSULTANTS AND RELATED SERVICES, NEC
B3		DP EDUCATION FIRMS
	8243	DATA PROCESSING EDUCATION FIRMS
B4		REMOTE COMPUTING SERVICERS
	737B	REMOTE COMPUTING SERVICERS
	7375	INFORMATION RETRIEVAL SERVICES
B5		SYSTEMS INTEGRATORS
	7373	COMPUTER INTEGRATED SYSTEMS DESIGN
B6		COMPUTER FACILITY MANAGEMENT FIRMS
	7376	COMPUTER FACILITIES MANAGEMENT
B7		CONTRACT PROGRAMMING
	7371	COMPUTER PROGRAMMING SERVICES
B8		PACKAGE PROGRAMMING
	7372	PREPACKAGED SOFTWARE
C1		MANAGEMENT CONSULTANTS
	8741	MANAGEMENT SERVICES
	8742	MANAGEMENT CONSULTING SERVICES
	8743	PUBLIC RELATIONS SERVICES
	8748	BUSINESS CONSULTING, NEC
C2		CPA FIRMS & PUBLIC ACCOUNTANTS
	8721	ACCOUNTING, BOOKKEEPING AND AUDITING
C3		LEGAL FIRMS
	8111	LEGAL SERVICES
DA		APPAREL MANUFACTURERS
	2251	WOMENS HOSIERY, EXCEPT SOCKS
	2252	HOSIERY, NEC

TABLE I - SIC CODES BY INDUSTRY CLASS

IN CL	SIC CODE	DESCRIPTION
	2253	KNIT OUTERWEAR MILLS
	2254	KNIT UNDERWEAR MILLS
	2259	KNITTING MILLS, NEC
	2311	MEN'S AND BOYS' SUITS AND COATS
	2321	MEN'S AND BOYS' SHIRTS
	2322	MEN'S AND BOYS' UNDERWEAR AND NIGHTWEAR
	2323	MEN'S AND BOYS' NECKWEAR
	2325	MEN'S AND BOYS' TROUSERS AND SLACKS
	2326	MEN'S AND BOYS' WORK CLOTHING
	2329	MEN'S AND BOYS' CLOTHING, NEC
	2331	WOMEN'S AND MISSES' BLOUSES AND SHIRTS
	2335	WOMEN'S, JUNIORS' AND MISSES' DRESSES
	2337	WOMEN'S AND MISSES' SUITS AND COATS
	2339	WOMEN'S AND MISSES' OUTERWEAR, NEC
	2341	WOMEN'S AND CHILDREN'S UNDERWEAR
	2342	BRAS, GIRDLES, AND ALLIED GARMENTS
	2353	HATS, CAPS AND MILLINERY
	2361	GIRLS' AND CHILDREN'S DRESSES AND BLOUSES
	2369	GIRLS' AND CHILDREN'S OUTERWEAR, NEC
	2371	FUR GOODS
	2381	FABRIC DRESS AND WORK GLOVES
	2384	ROBES AND DRESSING GOWNS
	2385	WATERPROOF OUTERWEAR
	2386	LEATHER AND SHEEP-LINED CLOTHING
	2387	APPAREL BELTS
	2389	APPAREL AND ACCESSORIES, NEC
	2391	CURTAINS AND DRAPERIES
	2392	HOUSEFURNISHINGS, NEC
	2393	TEXTILE BAGS
	2394	CANVAS AND RELATED PRODUCTS
	2395	PLEATING AND STITCHING
	2396	AUTOMOTIVE AND APPAREL TRIMMINGS
	2397	SCHIFFLI MACHINE EMBROIDERIES
	2399	FABRICATED TEXTILE PRODUCTS, NEC
	3111	LEATHER TANNING AND FINISHING
	3131	FOOTWEAR CUT STOCK
	3142	HOUSE SLIPPERS
	3143	MEN'S FOOTWEAR, EXCEPT ATHLETIC
	3144	WOMEN'S FOOTWEAR, EXCEPT ATHLETIC
	3149	FOOTWEAR, EXCEPT RUBBER, NEC
	3151	LEATHER GLOVES AND MITTENS
	3161	LUGGAGE
	3171	WOMENS HANDBAGS AND PURSES
	3172	PERSONAL LEATHER GOODS, NEC
	3199	LEATHER GOODS, NEC
D1		GENERAL MERCHANDISE RETAILERS
	5211	LUMBER AND OTHER BUILDING MATERIALS
	5231	PAINT, GLASS, AND WALLPAPER STORES

TABLE I - SIC CODES BY INDUSTRY CLASS

IN CL	SIC CODE	DESCRIPTION
	5251	HARDWARE STORES
	5261	RETAIL NURSERIES, LAWN AND GARDEN STORES
	5311	DEPARTMENT STORES
	533A	DISCOUNT STORES
	5331	VARIETY STORES
	5399	MISCELLANEOUS GENERAL MERCHANDISE STORES
	5611	MEN'S AND BOYS' CLOTHING STORES
	5621	WOMEN'S CLOTHING STORES
	5632	WOMEN'S ACCESSORY AND SPECIALITY STORES
	5641	CHILDREN'S AND INFANTS' WEAR STORES
	5651	FAMILY CLOTHING STORES
	5661	SHOE STORES
	5699	MISCELLANEOUS APPAREL & ACCESSORY STORES
	5712	FURNITURE STORES
	5713	FLOOR COVERING STORES
	5714	DRAPERY, CURTAIN, AND UPHOLSTERY STORES
	5719	MISCELLANEOUS HOMEFURNISHING STORES
	5722	HOUSEHOLD APPLIANCE STORES
	5731	RADIO, TV AND ELECTRONIC STORES
	5734	COMPUTER AND SOFTWARE STORES
	5735	RECORD AND PRERECORDED TAPE STORES
	5736	MUSICAL INSTRUMENTS STORES
	5932	USED MERCHANDISE STORES
	5941	SPORTING GOODS AND BICYCLE SHOPS
	5942	BOOK STORES
	5943	STATIONERY STORES
	5944	JEWELRY STORES
	5945	HOBBY, TOY AND GAME SHOPS
	5946	CAMERA AND PHOTOGRAPHIC SUPPLY STORES
	5947	GIFT, NOVELTY AND SOUVENIR SHOPS
	5948	LUGGAGE AND LEATHER GOODS STORES
	5949	SEWING, NEEDLEWORK, AND PIECE GOODS
	5961	CATALOG AND MAIL-ORDER HOUSES
	5983	FUEL OIL DEALERS
	5984	LIQUIFIED PETROLEUM GAS DEALERS
	5989	FUEL DEALERS, NEC
	5992	Fflorist STORES
	5993	TOBACCO STORES AND STANDS
	5994	NEWSPAPER AND NEWSSTANDS
	5995	OPTICAL GOODS STORES
	5999	MISCELLANEOUS RETAIL STORES, NEC
D2		FOOD AND DRUG RETAILERS
	5411	GROCERY STORES
	5421	MEAT AND FISH MARKETS
	5431	FRUIT AND VEGETABLE MARKETS
	5441	CANDY, NUT, AND CONFECTIONERY STORES
	5451	DAIRY PRODUCTS STORES
	5461	RETAIL BAKERIES

TABLE I - SIC CODES BY INDUSTRY CLASS

IN CL	SIC CODE	DESCRIPTION
	5499	MISCELLANEOUS FOOD STORES
	5812	EATING PLACES
	5813	DRINKING PLACES (ALCOHOLIC BEVERAGES)
	5912	DRUG STORES AND PROPRIETARY STORES
	5921	LIQUOR STORES
	5962	VENDING MACHINE OPERATORS
	5963	DIRECT SELLING ESTABLISHMENTS
E1		UNIVERSITIES, PROFESSIONAL SCHOOLS
	822A	MEDICAL SCHOOLS
	822B	PRIVATE UNIVERSITIES
	822H	PUBLIC UNIVERSITIES
	822J	UNIVERSITIES - CONSORTIA
	942E	UNIVERSITIES, STATE ENTERPRISE
	952E	UNIVERSITIES, COUNTY ENTERPRISE
	962E	UNIVERSITIES, CITY ENTERPRISE
E2		FOUR YEAR COLLEGES
	822C	PRIVATE FOUR YEAR COLLEGES
	822K	FOUR YEAR COLLEGES - CONSORTIA
	8221	PUBLIC FOUR YEAR COLLEGES
	942C	4 YEAR COLLEGES, STATE ENTERPRISE
	952C	4 YEAR COLLEGES, COUNTY ENTERPRISE
	962C	4 YEAR COLLEGES, CITY ENTERPRISE
E3		JUNIOR AND COMMUNITY COLLEGES
	822L	JUNIOR/COMMUNITY COLLEGES - CONSORTIA
	8222	JUNIOR AND COMMUNITY COLLEGES
	942B	JR./COMMUNITY COLLEGES, STATE ENTERPRISE
	952B	JR./COMMUNITY COLLEGES, COUNTY ENTERPRISE
	962B	JR./COMMUNITY COLLEGES, CITY ENTERPRISE
E4		MISCELLANEOUS HIGHER EDUCATION
	731E	PURCHASING AGENCIES, HIGHER EDUCATION
	8299	SCHOOLS AND EDUCATIONAL SERVICES/LABS
	8733	NONCOMMERCIAL RESEARCH ORGANIZATIONS
	9420	STATE BD OF EDUCATION-ADM/VOC/ETC
E5		LIBRARIES
	823A	LIBRARY NETWORKS AND UTILITIES
	8231	UNIVERSITY AND COLLEGE LIBRARIES
	9404	STATE LIBRARIES
	9504	COUNTY LIBRARIES
	9604	CITY LIBRARIES
E6		MUSEUMS, ZOOS
	8412	MUSEUMS AND ART GALLERIES
	8422	ARBORETA, ZOOLOGICAL AND BOTANICAL GARDENS

TABLE I - SIC CODES BY INDUSTRY CLASS

IN CL	SIC CODE	DESCRIPTION
	9469	NATURAL RESOURCES, NEC
	9471	BUILDING ADMIN.
	9472	PUBLIC HOUSING
	9473	PUBLIC CONSTRUCTION AND BUILDINGS
	9474	PUBLIC LAND ADMIN.
	9475	URBAN RENEWAL
	9476	URBAN SYSTEMS
	9479	PUBLIC WORKS, NEC
	9481	LABOR ADMINISTRATION
	9482	EMPLOYMENT SECURITY ADMINISTRATION
	9483	EMPLOYMENT SERVICES
	9484	UNEMPLOYMENT INSURANCE
	9485	WORKMENS COMPENSATION
	9486	STATE INSURANCE FUND
	9487	JTPA/CETA
	9490	PARKING STRUCTURE
	9492	ELECTION BOARDS / VOTER REGISTRATION
	9494	WATER SYSTEMS
	9495	SANITARY SERVICES
	9496	ENVIRONMENTAL SERVICES
	9498	INTERSTATE ORGAN., AUTHOR. & COMM., ETC.
	9499	UTILITIES, NEC
G2		CITY GOVERNMENT
	9600	PUBLIC GAMING
	9602	PARKS AND BEACHES
	9608	PLANNING AND DEVELOPMENT
	9610	RECORDS MANAGEMENT
	9611	EXECUTIVE BRANCH
	9612	PERSONNEL
	9613	FINANCE
	9614	REVENUE
	9615	REGULATORY AGENCIES
	9616	ALCOHOLIC BEV CNTRL
	9617	LEGISLATIVE
	9618	JUSTICE ADMINISTRATION
	9619	CENTRAL DP AUTHORITY
	9621	ADMINISTRATION
	9624	CENTRAL SERVICES
	9625	FOOD STAMPS
	9627	PROSECUTOR
	9630	TRAFFIC CONTROL
	9631	MOTOR VEHICLE ADMINISTRATION
	9632	HIGHWAY ADMINISTRATION - CONST. & MAINT.
	9633	TOLL ROADS, BRIDGES AND TUNNELS
	9635	MASS TRANSIT
	9636	WASTEWAYS ADMINISTRATION, REG.
	9639	TRANSPORTATION, NEC
	9640	MENTAL HEALTH ADMINISTRATION

TABLE I - SIC CODES BY INDUSTRY CLASS

IN CL	SIC CODE	DESCRIPTION
	9641	PUBLIC HEALTH ADMINISTRATION
	9642	AIR POLLUTION CONTROL
	9643	WATER POLLUTION CONTROL
	9644	SOCIAL SERVICES
	9645	GENERAL ASSISTANCE
	9646	PUBLIC ASSISTANCE - CATEGORICAL AID
	9647	PREVENTIVE SERVICES
	9649	HEALTH/WELFARE, NEC
	9650	PROBATION
	9651	PAROLE
	9652	LAW ENFORCEMENT
	9653	CORRECTIONS/JAILS
	9654	FIRE
	9655	EMERGENCY SERVICES
	9657	DISPOSAL, LAND FILL
	9658	PLANNING BOARD
	9659	COURTS
	9660	WASTE WEIGHTING, SCH
	9661	COMPUTER AIDED DISPATCH (E911) - LAW ENFORCEMENT
	9662	RECORDS MANAGEMENT - LAW ENFORCEMENT
	9663	IDENTIFICATION (AFIS)
	9664	COMPUTER AIDED DISPATCH (E911) - FIRE
	9665	RECORDS MANAGEMENT - FIRE
	9669	NATURAL RESOURCES, NEC
	9671	BUILDING ADMIN.
	9672	PUBLIC HOUSING
	9673	PUBLIC CONSTRUCTION AND BUILDINGS
	9674	PUBLIC LAND ADMINISTRATION
	9675	URBAN RENEWAL
	9676	URBAN SYSTEMS
	9679	PUBLIC WORKS, NEC
	9687	JTPA/CETA
	9688	AIRPORT TERMINAL SERVICES
	9690	PARKING STRUCTURE
	9692	ELECTION BOARDS / VOTER REGISTRATION
	9694	WATER SUPPLY
	9695	SANITARY SERVICES
	9696	ENVIRONMENTAL SERVICES
	9699	UTILITIES, NEC
G3		COUNTY GOVERNMENT
	9502	PARKS AND BEACHES
	9505	BUDGET APPROP.-ACCTG
	9507	TAX-INCOME,PROPERTY
	9508	PLANNING AND DEVELOPMENT
	9510	RECORDS MANAGEMENT
	9511	EXECUTIVE BRANCH
	9512	PERSONNEL
	9513	FINANCE

TABLE I - SIC CODES BY INDUSTRY CLASS

IN CL	SIC CODE	DESCRIPTION
	9514	REVENUE
	9515	REGULATORY AGENCIES
	9517	LEGISLATIVE
	9518	JUSTICE ADMINISTRATION
	9519	CENTRAL DP AUTHORITY
	9521	ADMINISTRATION
	9524	CENTRAL SERVICES
	9525	FOOD STAMPS
	9527	PROSECUTOR
	9530	TRAFFIC CONTROL
	9531	MOTOR VEHICLE ADMINISTRATION
	9532	HIGHWAY ADMINISTRATION - CONST. & MAINT.
	9533	TOLL ROADS, BRIDGES AND TUNNELS
	9535	MASS TRANSIT
	9536	WASTEWAYS ADMINISTRATION, REG.
	9539	TRANSPORTATION, NEC
	9540	MENTAL HEALTH ADMINISTRATION
	9541	PUBLIC HEALTH ADMINISTRATION
	9542	AIR POLLUTION CONTROL
	9543	WATER POLLUTION CONTROL
	9544	SOCIAL SERVICES
	9545	GENERAL ASSISTANCE
	9546	PUBLIC ASSISTANCE - CATEGORICAL AID
	9547	PREVENTIVE SERVICES
	9549	HEALTH/WELFARE NEC
	9550	PROBATION
	9551	PAROLE
	9552	LAW ENFORCEMENT
	9553	CORRECTIONS/JAILS
	9554	FIRE
	9555	EMERGENCY SERVICES
	9557	DISPOSAL, LAND FILL
	9558	PLANNING BOARD
	9559	COURTS
	9560	WASTE WEIGHTING, SCH
	9561	COMPUTER AIDED DISPATCH (E911) - LAW ENFORCEMENT
	9562	RECORDS MANAGEMENT - LAW ENFORCEMENT
	9563	IDENTIFICATION (AFIS)
	9564	COMPUTER AIDED DISPATCH (E911) - FIRE
	9565	RECORDS MANAGEMENT - FIRE
	9569	NATURAL RESOURCES, NEC
	9571	BUILDING ADMIN.
	9574	PUBLIC LAND ADMINISTRATION
	9579	PUBLIC WORKS, NEC
	9587	JTPA/CETA
	9588	AIRPORT TERMINAL SERVICES
	9590	PARKING STRUCTURE
	9592	ELECTION BOARDS / VOTER REGISTRATION
	9594	WATER SUPPLY

TABLE I - SIC CODES BY INDUSTRY CLASS

IN CL	SIC CODE	DESCRIPTION
	9595	SANITARY SERVICES
	9596	ENVIRONMENTAL SERVICES
	9599	UTILITIES, NEC
G4		SPECIAL DISTRICTS
	9708	ADMINISTRATION & PLANNING
	9718	JUSTICE ADMINISTRATION
	9727	PROSECUTOR
	9735	TRANSPORTATION
	9750	PROBATION
	9751	PAROLE
	9752	LAW ENFORCEMENT
	9753	CORRECTIONS/JAILS
	9754	FIRE
	9755	EMERGENCY SERVICES
	9759	COURTS
	9761	COMPUTER AIDED DISPATCH (E911) - LAW ENFORCEMENT
	9762	RECORDS MANAGEMENT - LAW ENFORCEMENT
	9763	IDENTIFICATION (AFIS)
	9764	COMPUTER AIDED DISPATCH (E911) - FIRE
	9765	RECORDS MANAGEMENT - FIRE
	9796	ENVIRONMENTAL SERVICES
H1		SHORT TERM HOSPITALS/UNIVERSITY HOSPITALS
	806A	UNIVERSITY HOSPITALS
	8062	GENERAL MEDICAL AND SURGICAL HOSPITALS
H2		LONG TERM HOSPITALS
	8063	PSYCHIATRIC HOSPITALS
	8069	OTHER LONG TERM HOSPITALS
H3		ALTERNATE HEALTH CARE FACILITIES
	8051	SKILLED NURSING CARE FACILITIES
	8059	NURSING AND PERSONAL CARE, NEC
	8082	HOME HEALTH CARE SERVICES
H4		MEDICAL GROUP CLINICS/OFFICES OF PHYSICIANS
	8011	OFFICES AND CLINICS OF MEDICAL DOCTORS
	8021	OFFICES AND CLINICS OF DENTISTS
	8031	OFFICES AND CLINICS OF OSTEOPATHIC PHYSICIANS
	8041	OFFICES AND CLINICS OF CHIROPRACTORS
	8042	OFFICES AND CLINICS OF OPTOMETRISTS
	8043	OFFICES AND CLINICS OF PODIATRISTS
	8049	OFFICES OF HEALTH PRACTITIONERS, NEC
	8052	MED GRP PRAC CLINICS
	8093	SPECIALITY OUTPATIENT CLINICS
H6		HEALTH DATA SERVICES
	809E	HEALTH DATA SERVICES

TABLE I - SIC CODES BY INDUSTRY CLASS

IN CL	SIC CODE	DESCRIPTION
	942H	HEALTH SERVICES, STATE ENTERPRISE
	952H	HEALTH SERVICES, COUNTY ENTERPRISE
	962H	HEALTH SERVICES, CITY ENTERPRISE
H7		HEALTH CONSULTANTS
	809B	CONSULTANTS - MEDICAL
H8		CLINICAL LABS
	8071	MEDICAL LABORATORIES
	8072	DENTAL LABORATORIES
H9		HEALTH - OTHER
	731H	PURCHASING AGENCIES, HEALTH
	809A	HEALTH CARE COMPLEXES - REGIONAL MEDICAL PGMS
	809C	AR MEDIQUEST
	809D	COMP COMM HEALTH CENTERS
	8092	KIDNEY DIALYSIS CENTERS
	8099	HEALTH AND ALLIED SERVICES, NEC
	862A	PROFESSIONAL MEDICAL ASSOCIATIONS
	873H	COMMERCIAL PHYSICAL RESEARCH, MEDICAL
J2		AUTO/MOTOR VEH. - DEALERS, PARTS & REPAIR
	5012	AUTOMOBILES AND OTHER MOTOR VEHICLES
	5013	MOTOR VEHICLE SUPPLIES AND NEW PARTS
	5014	TIRES AND TUBES
	5015	MOTOR VEHICLE PARTS, USED
	5082	CONSTRUCTION AND MINING MACHINERY
	5083	FARM AND GARDEN MACHINERY
	5271	MOBILE HOMES
	5511	NEW AND USED CAR DEALERS
	5521	USED CAR DEALERS
	5531	AUTO AND HOME SUPPLY STORES
	5551	BOAT DEALERS
	5561	RECREATION VEHICLE DEALERS
	5571	MOTORCYCLE DEALERS
	5599	AUTOMOTIVE DEALERS, NEC
	7532	TOP AND BODY REPAIR AND PAINT SHOPS
	7533	AUTOMOTIVE EXHAUST SYSTEM REPAIR SHOPS
	7534	TIRE RETREADING AND REPAIR SHOPS
	7536	AUTOMOTIVE GLASS REPLACEMENT SHOPS
	7537	AUTOMOTIVE TRANSMISSION REPAIR SHOPS
	7538	GENERAL AUTOMOBILE REPAIR SHOPS
	7539	AUTOMOBILE REPAIR SHOPS, NEC
	7542	CARWASHES
	7549	AUTOMOTIVE SERVICES, NEC
J3		NON-DURABLE GOODS WHOLESALERS
	5111	PRINTING AND WRITING PAPER
	5112	STATIONERY AND OFFICE SUPPLIES

TABLE I - SIC CODES BY INDUSTRY CLASS

IN CL	SIC CODE	DESCRIPTION
	5113	INDUSTRIAL AND PERSONAL SERVICE PAPER
	5122	DRUGS, PROPRIETARIES, AND SUNDRIES
	5131	PIECE GOODS AND NOTIONS
	5136	MEN'S AND BOYS' CLOTHING
	5137	WOMEN'S AND CHILDREN'S CLOTHING
	5139	FOOTWEAR
	5141	GROCERIES, GENERAL LINE
	5142	PACKAGED FROZEN FOODS
	5143	DAIRY PRODUCTS, EXC. DRIED OR CANNED
	5144	POULTRY AND POULTRY PRODUCTS
	5145	CONFECTIONERY
	5146	FISH AND SEAFOODS
	5147	MEATS AND MEAT PRODUCTS
	5148	FRESH FRUITS AND VEGETABLES
	5149	GROCERIES AND RELATED PRODUCTS, NEC
	5153	GRAIN AND FIELD BEANS
	5154	LIVESTOCK
	5159	FARM-PRODUCT RAW MATERIAL, NEC
	5162	PLASTICS MATERIALS AND BASIC SHAPES
	5169	CHEMICALS AND ALLIED PRODUCTS, NEC
	5181	BEER AND ALE
	5182	WINES AND DISTILLED BEVERAGES
	5191	FARM SUPPLY
	5192	BOOKS, PERIODICALS, AND NEWSPAPERS
	5193	FLOWERS AND FLORIST SUPPLIES
	5194	TOBACCO AND TOBACCO PRODUCTS
	5198	PAINTS, VARNISHES, AND SUPPLIES
	5199	NONDURABLE GOODS, NEC
J4		DURABLE GOODS WHOLESALERS
	5021	FURNITURE
	5023	HOMEFURNISHINGS
	5031	LUMBER, PLYWOOD, AND MILLWORK
	5032	BRICK, STONE AND RELATED MATERIALS
	5033	ROOFING, SIDING, AND INSULATION
	5039	CONSTRUCTION MATERIALS, NEC
	5043	PHOTOGRAPHIC EQUIPMENT AND SUPPLIES
	5044	OFFICE EQUIPMENT
	5045	COMPUTERS, PERIPHERALS, AND SOFTWARE
	5046	COMMERCIAL EQUIPMENT, NEC
	5047	MEDICAL AND HOSPITAL EQUIPMENT
	5048	OPTHALMIC GOODS
	5049	PROFESSIONAL EQUIPMENT, NEC
	5051	METALS SERVICE CENTERS AND OFFICES
	5052	COAL AND OTHER MINERALS AND ORES
	5063	ELECTRICAL APPARATUS AND EQUIPMENT
	5064	ELECTRICAL APPLIANCES, TV, AND RADIOS
	5065	ELECTRONIC PARTS AND EQUIPMENT
	5072	HARDWARE

TABLE I - SIC CODES BY INDUSTRY CLASS

IN CL	SIC CODE	DESCRIPTION
	7338	SECRETARIAL AND COURT REPORTING
	7384	PHOTOFINISHING LABORATORIES
K6		ADVERTISING/MARKETING
	596A	RECORD AND TAPE CLUBS
	7311	ADVERTISING AGENCIES
	7312	OUTDOOR ADVERTISING SERVICES
	7313	RADIO, TV, PUBLISHER REPRESENTATIVES
	7319	ADVERTISING, NEC
	7331	DIRECT MAIL ADVERTISING SERVICES
	8732	COMMERCIAL NONPHYSICAL RESEARCH
K7		BROADCASTING
	4832	RADIO BROADCASTING STATIONS
	4833	TELEVISION BROADCASTING STATIONS
	484A	CABLE NETWORK PROGRAMMING
K8		ASSOCIATIONS AND CHURCHES
	8322	INDIVIDUAL AND FAMILY SERVICES
	8351	CHILD DAY CARE SERVICES
	8399	SOCIAL SERVICES, NEC
	8611	BUSINESS ASSOCIATIONS
	8621	PROFESSIONAL ORGANIZATIONS
	8631	LABOR ORGANIZATIONS
	8641	CIVIC AND SOCIAL ASSOCIATIONS
	8651	POLITICAL ORGANIZATIONS
	8661	RELIGIOUS ORGANIZATIONS
	8699	MEMBERSHIP ORGANIZATIONS, NEC
K9		ENTERTAINMENT AND LEISURE
	7812	MOTION PICTURE AND VIDEO PRODUCTION
	7819	MOTION PICTURE SERVICES
	7822	MOTION PICTURE AND TAPE DISTRIBUTION
	7829	MOTION PICTURE DISTRIBUTION SERVICES
	7832	MOTION PICTURE THEATERS, EXCEPT DRIVE-INS
	7833	DRIVE-IN MOTION PICTURE THEATERS
	7841	VIDEO TAPE RENTAL
	7911	DANCE HALLS, STUDIOS, SCHOOLS
	7922	THEATRICAL PRODUCERS AND MISC. SERVICES
	7929	ENTERTAINERS AND ENTERTAINMENT GROUPS
	7933	BOWLING CENTERS
	7941	SPORTS CLUBS, MANAGERS, PROMOTERS, ARENAS
	7948	RACING, INCLUDING TRACK OPERATION
	7991	PHYSICAL FITNESS FACILITIES
	7992	PUBLIC GOLF COURSES
	7993	COIN-OPERATED AMUSEMENT DEVICES
	7996	AMUSEMENT PARKS
	7997	MEMBERSHIP SPORTS AND RECREATION CLUBS
	7999	AMUSEMENT AND RECREATION, NEC

TABLE I - SIC CODES BY INDUSTRY CLASS

IN CL	SIC CODE	DESCRIPTION
MA		AEROSPACE
	3721	AIRCRAFT
	3724	AIRCRAFT ENGINES AND ENGINE PARTS
	3728	AIRCRAFT PARTS AND EQUIPMENT, NEC
	3731	SHIP BUILDING AND REPAIRNG
	3761	GUIDED MISSILES AND SPACE VEHICLES
	3764	SPACE PROPULSION UNITS AND PARTS
	3769	SPACE VEHICLE EQUIPMENT, NEC
M1		CONSTRUCTION
	1521	SINGLE FAMILY HOUSING CONSTRUCTION
	1522	RESIDENTIAL CONSTRUCTION, NEC
	1531	OPERATIVE BUILDERS
	1541	INDUSTRIAL BUILDINGS AND WAREHOUSES
	1542	NONRESIDENTIAL CONSTRUCTION, NEC
	1611	HIGHWAY AND STREET CONSTRUCTION
	1622	BRIDGE, TUNNEL, AND ELEVATED HIGHWAY
	1623	WATER, SEWER AND UTILITY LINES
	1629	HEAVY CONSTRUCTION, NEC
	1711	PLUMBING, HEATING, AIR CONDITIONING
	1721	PAINTING, PAPER HANGING, AND DECORATING
	1731	ELECTRICAL WORK
	1741	MASONRY AND OTHER STONEWORK
	1742	PLASTERING, DRYWALL, AND INSULATION
	1743	TERRAZZO, TILE, MARBLE, AND MOSAIC WORK
	1751	CARPENTRY WORK
	1752	FLOOR LAYING AND FLOORWORK, NEC
	1761	ROOFING, SIDING, AND SHEET METAL WORK
	1771	CONCRETE WORK
	1781	WATER WELL DRILLING
	1791	STRUCTURAL STEEL ERECTION
	1793	GLASS AND GLAZING WORK
	1794	EXCAVATION WORK
	1795	WRECKING AND DEMOLITION WORK
	1796	INSTALLING BUILDING EQUIPMENT, NEC
	1799	SPECIAL TRADE CONTRACTORS, NEC
	651A	FACILITIES MANAGEMENT - REAL ESTATE
	6512	OPERATORS OF NONRESIDENTIAL BUILDINGS
	6513	OPERATORS OF APARTMENT BUILDINGS
	6514	DWELLING OPERATORS, EXC. APARTMENTS
	6515	MOBILE HOME SITE OPERATORS
	6519	LESSORS OF REAL PROPERTY, NEC
	6552	SUBDIVIDERS AND DEVELOPERS, NEC
	8711	ENGINEERING SERVICES
	8712	ARCHITECTURAL SERVICES
	8713	SURVEYING SERVICES
M2		MOTOR VEHICLE & OTHER TRANSPORTATION EQUIP.
	2451	MOBILE HOMES

TABLE I - SIC CODES BY INDUSTRY CLASS

IN CL	SIC CODE	DESCRIPTION
	3465	AUTOMOTIVE STAMPINGS
	3511	TURBINES AND TURBINE GENERATOR SETS
	3519	INTERNAL COMBUSTION ENGINES, NEC
	3523	FARM MACHINERY AND EQUIPMENT
	3524	LAWN AND GARDEN EQUIPMENT
	3531	CONSTRUCTION MACHINERY AND EQUIPMENT
	3537	INDUSTRIAL TRUCKS AND TRACTORS
	3592	CARBURETORS, PISTONS, RINGS, VALVES
	3711	MOTOR VEHICLES AND PASSENGER CAR BODIES
	3713	TRUCK AND BUS BODIES
	3714	MOTOR VEHICLE PARTS AND ACCESSORIES
	3715	TRUCK TRAILERS
	3716	MOTOR HOMES
	3732	BOAT BUILDING AND REPAIRING
	3743	RAILROAD EQUIPMENT
	3751	MOTORCYCLES, BICYCLES, AND PARTS
	3792	TRAVEL TRAILERS AND CAMPERS
	3795	TANKS AND TANK COMPONENTS
	3799	TRANSPORTATION EQUIPMENT, NEC
M3		ELECTRICAL MACHINERY
	3568	POWER TRANSMISSION EQUIPMENT, NEC
	357L	DP MANUFACTURERS INTERNAL DP USE
	3571	ELECTRONIC COMPUTERS
	3572	COMPUTER STORAGE DEVICES
	3575	COMPUTER TERMINALS
	3577	COMPUTER PERIPHERAL EQUIPMENT, NEC
	3578	CALCULATING AND ACCOUNTING EQUIPMENT
	3579	OFFICE MACHINES, NEC
	3596	SCALES AND BALANCES, EXC. LABORATORY
	3612	TRANSFORMERS, EXCEPT ELECTRONIC
	3613	SWITCHGEAR AND SWITCHBOARD APPARATUS
	3621	MOTORS AND GENERATORS
	3624	CARBON AND GRAPHITE PRODUCTS
	3625	RELAYS AND INDUSTRIAL CONTROLS
	3629	ELECTRICAL INDUSTRIAL APPARATUS, NEC
	3631	HOUSEHOLD COOKING EQUIPMENT
	3632	HOUSEHOLD REFRIGERATORS AND FREEZERS
	3633	HOUSEHOLD LAUNDRY EQUIPMENT
	3634	ELECTRIC HOUSEWARES AND FANS
	3635	HOUSEHOLD VACUUM CLEANERS
	3639	HOUSEHOLD APPLIANCES, NEC
	3641	ELECTRIC LAMPS
	3643	CURRENT-CARRYING WIRING DEVICES
	3644	NONCURRENT-CARRYING WIRING DEVICES
	3645	RESIDENTIAL LIGHTING FIXTURES
	3646	COMMERCIAL LIGHTING FIXTURES
	3647	VEHICULAR LIGHTING EQUIPMENT
	3648	LIGHTING EQUIPMENT, NEC

TABLE I - SIC CODES BY INDUSTRY CLASS

IN CL	SIC CODE	DESCRIPTION
	3651	HOUSEHOLD AUDIO AND VIDEO EQUIPMENT
	3652	PRERECORDED RECORDS AND TAPES
	3661	TELEPHONE AND TELEGRAPH APPARATUS
	3663	RADIO AND TV COMMUNICATIONS EQUIPMENT
	3669	COMMUNICATIONS EQUIPMENT, NEC
	3671	ELECTRON TUBES
	3672	PRINTED CIRCUIT BOARDS
	3674	SEMICONDUCTORS AND RELATED DEVICES
	3675	ELECTRONIC CAPACITORS
	3676	ELECTRONIC RESISTORS
	3677	ELECTRONIC COILS AND TRANSFORMERS
	3678	ELECTRONIC CONNECTORS
	3679	ELECTRONIC COMPONENTS, NEC
	3691	STORAGE BATTERIES
	3692	PRIMARY BATTERIES, DRY AND WET
	3694	ENGINE ELECTRICAL EQUIPMENT
	3695	MAGNETIC AND OPTICAL RECORDING MEDIA
	3699	ELECTRICAL EQUIPMENT AND SUPPLIES, NEC
	3812	SEARCH AND NAVIGATION EQUIPMENT
	3821	LABORATORY APPARATUS AND FURNITURE
	3822	ENVIRONMENTAL CONTROLS
	3823	PROCESS CONTROL INSTRUMENTS
	3824	FLUID METERS AND COUNTING DEVICES
	3825	INSTRUMENTS TO MEASURE ELECTRICTY
	3826	ANALYTICAL INSTRUMENTS
	3827	OPTICAL INSTRUMENTS AND LENSES
	3829	MEASURING AND CONTROLLING DEVICES, NEC
	3841	SURGICAL AND MEDICAL INSTRUMENTS
	3842	SURGICAL APPLIANCES AND SUPPLIES
	3843	DENTAL EQUIPMENT AND SUPPLIES
	3844	X-RAY APPARATUS AND TUBES
	3845	ELECTROMEDICAL EQUIPMENT
	3851	OPHTHALMIC GOODS
	3861	PHOTOGRAPHIC EQUIPMENT AND SUPPLIES
	3873	WATCHES, CLOCKS, WATCHCASES AND PARTS
M5		FABRICATED PRODUCTS
	2511	WOOD HOUSEHOLD FURNITURE
	2512	UPHOLSTERED HOUSEHOLD FURNITURE
	2514	METAL HOUSEHOLD FURNITURE
	2515	MATTRESSES AND BEDSPRINGS
	2517	WOOD TV AND RADIO CABINETS
	2519	HOUSEHOLD FURNITURE, NEC
	2521	WOOD OFFICE FURNITURE
	2522	OFFICE FURNITURE, EXCEPT WOOD
	2531	PUBLIC BUILDING AND RELATED FURNITURE
	2541	WOOD PARTITIONS AND FIXTURES
	2542	PARTITIONS AND FIXTURES, EXCEPT WOOD
	2591	DRAPERY HARDWARE, BLINDS, SHADES

TABLE I - SIC CODES BY INDUSTRY CLASS

IN CL	SIC CODE	DESCRIPTION
	2599	FURNITURE AND FIXTURES, NEC
	3411	METAL CANS
	3412	METAL BARRELS, DRUMS, AND PAILS
	3421	CUTLERY
	3423	HAND AND EDGE TOOLS, NEC
	3425	HANDSAWS AND SAW BLADES
	3429	HARDWARE, NEC
	3431	METAL SANITARY WARE
	3432	PLUMBING FIXTURE FITTINGS AND TRIM
	3433	HEATING EQUIPMENT, EXCEPT ELECTRIC
	3441	FABRICATED STRUCTURAL METAL
	3442	METAL DOORS, SASH, AND TRIM
	3443	FABRICATED PLATE WORK (BOILER SHOPS)
	3444	SHEET METAL WORK
	3446	ARCHITECTURAL METAL WORK
	3448	PREFABRICATED METAL BUILDINGS
	3449	MISCELLANEOUS METAL WORK
	3451	SCREW MACHINE PRODUCTS
	3452	BOLTS, NUTS, SCREWS, RIVETS AND WASHERS
	3466	CROWNS AND CLOSURES
	3469	METAL STAMPINGS, NEC
	3471	PLATING AND POLISHING
	3479	METAL COATING AND ALLIED SERVICES
	3482	SMALL ARMS AMMUNITION
	3483	AMMUNITION, EXC. SMALL ARMS, NEC
	3484	SMALL ARMS
	3489	ORDNANCE AND ACCESSORIES, NEC
	3491	INDUSTRIAL VALVES
	3492	FLUID POWER VALVES AND HOSE FITTINGS
	3493	STEEL SPRINGS, EXCEPT WIRE
	3494	VALVES AND PIPE FITTINGS, NEC
	3495	WIRE SPRINGS
	3496	MISCELLANEOUS FABRICATED WIRE PRODUCTS
	3497	METAL FOIL AND LEAF
	3498	FABRICATED PIPE AND FITTINGS
	3499	FABRICATED METAL PRODUCTS, NEC
	3532	MINING MACHINERY
	3533	OIL AND GAS FIELD MACHINERY
	3534	ELEVATORS AND MOVING STAIRWAYS
	3535	CONVEYORS AND CONVEYING EQUIPMENT
	3536	HOISTS, CRANES, AND MONORAIL
	3541	MACHINE TOOLS, METAL CUTTING TYPES
	3542	MACHINE TOOLS, METAL FORMING TYPES
	3543	INDUSTRIAL PATTERNS
	3544	SPECIAL DIES, TOOLS, JIGS & FIXTURES
	3545	MACHINE TOOL ACCESSORIES
	3546	POWER DRIVEN HANDTOOLS
	3547	ROLLING MILL MACHINERY
	3548	WELDING APPARATUS

TABLE I - SIC CODES BY INDUSTRY CLASS

IN CL	SIC CODE	DESCRIPTION
	3549	METALWORKING MACHINERY, NEC
	3552	TEXTILE MACHINERY
	3553	WOODWORKING MACHINERY
	3554	PAPER INDUSTRIES MACHINERY
	3555	PRINTING TRADES MACHINERY
	3556	FOOD PRODUCTS MACHINERY
	3559	SPECIAL INDUSTRY MACHINERY, NEC
	3561	PUMPS AND PUMPING EQUIPMENT
	3562	BALL AND ROLLER BEARINGS
	3563	AIR AND GAS COMPRESSORS
	3564	BLOWERS AND FANS
	3565	PACKAGING MACHINERY
	3566	SPEED CHANGERS, DRIVES AND GEARS
	3567	INDUSTRIAL FURNACES AND OVENS
	3569	GENERAL INDUSTRIAL MACHINERY, NEC
	3581	AUTOMATIC VENDING MACHINES
	3582	COMMERCIAL LAUNDRY EQUIPMENT
	3585	REFRIGERATION AND HEATING EQUIPMENT
	3586	MEASURING AND DISPENSING PUMPS
	3589	SERVICE INDUSTRY MACHINES, NEC
	3593	FLUID POWER CYLINDERS AND ACTUATORS
	3594	FLUID POWER PUMPS AND MOTORS
	3599	INDUSTRIAL MACHINERY, NEC
	3911	JEWELRY, PRECIOUS METAL
	3914	SILVERWARE AND PLATED WARE
	3915	JEWELERS' MATERIALS AND LAPIDARY WORK
	3931	MUSICAL INSTRUMENTS
	3942	DOLLS AND STUFFED TOYS
	3944	GAMES, TOYS AND CHILDREN'S VEHICLES
	3949	SPORTING AND ATHLETIC GOODS, NEC
	3951	PENS AND MECHANICAL PENCILS
	3952	LEAD PENCILS AND ART GOODS
	3953	MARKING DEVICES
	3955	CARBON PAPER AND INKED RIBBONS
	3961	COSTUME JEWELRY
	3965	FASTENERS, BUTTONS, NEEDLES AND PINS
	3991	BROOMS AND BRUSHES
	3993	SIGNS AND ADVERTISING SPECIALITIES
	3995	BURIAL CASKETS
	3996	HARD SURFACE FLOOR COVERINGS, NEC
	3999	MANUFACTURING INDUSTRIES, NEC
N1		LIFE INSURANCE CARRIERS
	6311	INSURANCE CARRIERS - LIFE
	6321	INSURANCE CARRIERS - HEALTH AND ACCIDENT
N2		PROPERTY AND LIABILITY INSURANCE CARRIERS
	6331	INSURANCE CARRIERS - PROPERTY/LIABILITY
	6351	SURETY COMPANIES

TABLE I - SIC CODES BY INDUSTRY CLASS

IN CL	SIC CODE	DESCRIPTION
	6361	TITLE INSURANCE
	6541	TITLE ABSTRACT OFFICES
N3		MEDICAL INSURANCE PLANS
	6324	HOSPITAL AND MEDICAL SERVICE PLANS
N4		INSURANCE AGENTS AND BROKERS
	6411	INSURANCE AGENTS, BROKERS, AND SERVICE
N5		OTHER INSURANCE
	6371	PENSION, HEALTH AND WELFARE FUNDS
	6399	INSURANCE CARRIERS, NEC
	873N	COMMERCIAL PHYSICAL RESEARCH, INSURANCE
P1		PRIMARY METALS
	3312	BLAST FURNACES AND STEEL MILLS
	3313	ELECTROMETALLURGICAL PRODUCTS
	3315	STEEL WIRE AND RELATED PRODUCTS
	3316	COLD FINISHING OF STEEL SHAPES
	3317	STEEL PIPE AND TUBES
	3321	GRAY AND DUCTILE IRON FOUNDRIES
	3322	MALLEABLE IRON FOUNDRIES
	3324	STEEL INVESTMENT FOUNDRIES
	3325	STEEL FOUNDRIES, NEC
	3331	PRIMARY COPPER
	3334	PRIMARY ALUMINUM
	3339	PRIMARY NONFERROUS METALS, NEC
	3341	SECONDARY NONFERROUS METALS
	3351	COPPER ROLLING AND DRAWING
	3353	ALUMINUM SHEET, PLATE AND FOIL
	3354	ALUMINUM EXTRUDED PRODUCTS
	3355	ALUMINUM ROLLING AND DRAWING, NEC
	3356	NONFERROUS ROLLING AND DRAWING, NEC
	3357	NONFERROUS WIREDRAWING AND INSULATING
	3363	ALUMINUM DIE-CASTINGS
	3364	NONFERROUS DIE-CASTINGS, EXC. ALUMINUM
	3365	ALUMINUM FOUNDRIES
	3366	COPPER FOUNDRIES
	3369	NONFERROUS FOUNDRIES, NEC
	3398	METAL HEAT TREATING
	3399	PRIMARY METAL PRODUCTS, NEC
	3462	IRON AND STEEL FORGINGS
	3463	NONFERROUS FORGINGS
P2		FOREST PRODUCTS
	0811	TIMBER TRACTS
	0831	FOREST PRODUCTS
	0851	FORESTRY SERVICES
	2411	LOGGING

TABLE I - SIC CODES BY INDUSTRY CLASS

IN CL	SIC CODE	DESCRIPTION
	2421	SAWMILLS AND PLANING MILLS, GENERAL
	2426	HARDWOOD DIMENSION AND FLOORING MILLS
	2429	SPECIAL PRODUCT SAWMILLS, NEC
	2431	MILLWORK
	2434	WOOD KITCHEN CABINETS
	2435	HARDWOOD VENEER AND PLYWOOD
	2436	SOFTWOOD VENEER AND PLYWOOD
	2439	STRUCTURAL WOOD MEMBERS, NEC
	2441	NAILED WOODEN BOXES AND SHOOK
	2448	WOOD PALLETS AND SKIDS
	2449	WOOD CONTAINERS, NEC
	2452	PREFABRICATED WOOD BUILDINGS
	2491	WOOD PRESERVING
	2493	RECONSTITUTED WOOD PRODUCTS
	2499	WOOD PRODUCTS, NEC
	2611	PULP MILLS
	2621	PAPER MILLS
	2631	PAPERBOARD MILLS
	2652	SETUP PAPERBOARD BOXES
	2653	CORRUGATED AND SOLID FIBER BOXES
	2655	FIBER CANS, DRUMS, AND SIMILIAR PRODUCTS
	2656	SANITARY FOOD CONTAINERS
	2657	FOLDING PAPERBOARD BOXES
	2671	PAPER COATED AND LAMINATED, PACKAGING
	2672	PAPER COATED AND LAMINATED, NEC
	2673	BAGS: PLASTICS, LAMINATED AND COATED
	2674	BAGS: UNCOATED PAPER AND MULTIWALL
	2675	DIE-CUT PAPER AND BOARD
	2676	SANITARY PAPER PRODUCTS
	2677	ENVELOPES
	2678	STATIONARY PRODUCTS
	2679	CONVERTED PAPER PRODUCTS, NEC
P3		RUBBER, GLASS AND MINERAL PRODUCTS
	3011	TIRES AND INNER TUBES
	3021	RUBBER AND PLASTICS FOOTWEAR
	3052	RUBBER AND PLASTICS HOSE AND BELTING
	3053	GASKETS, PACKING AND SEALING DEVICES
	3061	MECHANICAL RUBBER GOODS
	3069	FABRICATED RUBBER PRODUCTS, NEC
	3081	UNSUPPORTED PLASTICS FILM AND SHEET
	3082	UNSUPPORTED PLASTICS PROFILE SHAPES
	3083	LAMINATED PLASTICS PLATE AND SHEET
	3084	PLASTICS PIPE
	3085	PLASTICS BOTTLES
	3086	PLASTICS FOAM PRODUCTS
	3087	CUSTOM COMPOUND PURCHASED RESINS
	3088	PLASTICS PLUMBING FIXTURES
	3089	PLASTICS PRODUCTS, NEC

TABLE I - SIC CODES BY INDUSTRY CLASS

IN CL	SIC CODE	DESCRIPTION
	3211	FLAT GLASS
	3221	GLASS CONTAINERS
	3229	PRESSED AND BLOWN GLASS, NEC
	3231	PRODUCTS OF PURCHASED GLASS
	3241	CEMENT, HYDRAULIC
	3251	BRICK AND STRUCTURAL CLAY TILE
	3253	CERAMIC WALL AND FLOOR TILE
	3255	CLAY REFRACTORIES
	3259	STRUCTURAL CLAY PRODUCTS, NEC
	3261	VITREOUS PLUMBING FIXTURES
	3262	VITREOUS CHINA TABLE AND KITCHENWARE
	3263	SEMIVITREOUS TABLE AND KITCHENWARE
	3264	PORCELAIN ELECTRICAL SUPPLIES
	3269	POTTERY PRODUCTS, NEC
	3271	CONCRETE BRICK AND BLOCK
	3272	CONCRETE PRODUCTS, NEC
	3273	READY-MIXED CONCRETE
	3274	LIME
	3275	GYPSUM PRODUCTS
	3281	CUT STONE AND STONE PRODUCTS
	3291	ABRASIVE PRODUCTS
	3292	ASBESTOS PRODUCTS
	3295	MINERALS, GROUND OR TREATED
	3296	MINERAL WOOL
	3297	NONCLAY REFRACTORIES
	3299	NONMETALLIC MINERAL PRODUCTS, NEC
P4		TEXTILES
	2211	BROADWOVEN FABRIC MILLS, COTTON
	2221	BROADWOVEN FABRIC MILLS, MANMADE
	2231	BROADWOVEN FABRIC MILLS, WOOL
	2241	NARROW FABRIC MILLS
	2257	WEFT KNIT FABRIC MILLS
	2258	LACE AND WARP KNIT FABRIC MILLS
	2261	FINISHING PLANTS, COTTON
	2262	FINISHING PLANTS, MANMADE
	2269	FINISHING PLANTS, NEC
	2273	CARPETS AND RUGS
	2281	YARN SPINNING MILLS
	2282	THROWING AND WINDING MILLS
	2284	THREAD MILLS
	2295	COATED FABRICS, NOT RUBBERIZED
	2296	TIRE CORD AND FABRICS
	2297	NONWOVEN FABRICS
	2298	CORDAGE AND TWINE
	2299	TEXTILE GOODS, NEC
P5		PHARMACEUTICALS
	2833	MEDICINALS AND BOTANICALS

TABLE I - SIC CODES BY INDUSTRY CLASS

IN CL	SIC CODE	DESCRIPTION
	2834	PHARMACEUTICAL PREPARATIONS
	2835	DIAGNOSTIC SUBSTANCES
	2836	BIOLOGICAL PRODUCTS, EXC. DIAGNOSTIC
P6		CONSUMER GOODS AND AGRIBUSINESS
	0111	WHEAT
	0112	RICE
	0115	CORN
	0116	SOYBEANS
	0119	CASH GRAINS, NEC
	0131	COTTON
	0132	TOBACCO
	0133	SUGAR CANE AND SUGAR BEETS
	0134	IRISH POTATOES
	0139	FIELD CROPS, EXCEPT CASH GRAINS, NEC
	0161	VEGETABLES AND MELONS
	0171	BERRY CROPS
	0172	GRAPES
	0173	TREE NUTS
	0174	CITRUS FRUITS
	0175	DECIDUOUS TREE FRUITS
	0179	FRUITS AND TREE NUTS, NEC
	0181	ORNAMENTAL NURSERY PRODUCTS
	0182	FOOD CROPS GROWN UNDER COVER
	0191	GENERAL FARMS, PRIMARILY CROP
	0211	BEEF CATTLE FEEDLOTS
	0212	BEEF CATTLE, EXCEPT FEEDLOTS
	0213	HOGS
	0214	SHEEP AND GOATS
	0219	GENERAL LIVESTOCK, NEC
	0241	DAIRY FARMS
	0251	BROILER, FRYER, AND ROASTER CHICKENS
	0252	CHICKEN EGGS
	0253	TURKEYS AND TURKEY EGGS
	0254	POULTRY HATCHERIES
	0259	POULTRY AND EGGS, NEC
	0271	FUR-BEARING ANIMALS AND RABBITS
	0272	HORSES AND OTHER EQUINES
	0273	ANIMAL AQUACULTURE
	0279	ANIMAL SPECIALTIES, NEC
	0291	GENERAL FARMS, PRIMARILY ANIMAL
	0711	SOIL PREPARATION SERVICES
	0721	CROP PLANTING AND PROTECTING
	0722	CROP HARVESTING
	0723	CROP PREPARATION SERVICES FOR MARKET
	0724	COTTON GINNING
	0741	VETERINARY SERVICES FOR LIVESTOCK
	0742	VETERINARY SERVICES, SPECIALITIES
	0751	LIVESTOCK SERVICES, EXCEPT VETERINARY

TABLE I - SIC CODES BY INDUSTRY CLASS

IN CL	SIC CODE	DESCRIPTION
	0752	ANIMAL SPECIALTY SERVICES
	0761	FARM LABOR CONTRACTORS
	0762	FARM MANAGEMENT SERVICES
	0781	LANDSCAPE COUNSELING AND PLANNING
	0782	LAWN AND GARDEN SERVICES
	0783	ORNAMENTAL SHRUB AND TREE SERVICES
	0912	FINFISH
	0913	SHELLFISH
	0919	MISCELLANEOUS MARINE PRODUCTS
	0921	FISH HATCHERIES AND PRESERVES
	0971	HUNTING, TRAPPING, GAME PROPAGATION
	2011	MEAT PACKING PLANTS
	2013	SAUSAGES AND OTHER PREPARED MEATS
	2015	POULTRY SLAUGHTERING AND PROCESSING
	2021	CREAMERY BUTTER
	2022	CHEESE, NATURAL AND PROCESSED
	2023	DRY, CONDENSED, EVAPORATED PRODUCTS
	2024	ICE CREAM AND FROZEN DESSERTS
	2026	FLUID MILK
	2032	CANNED SPECIALTIES
	2033	CANNED FRUITS AND VEGETABLES
	2034	DEHYDRATED FRUITS, VEGETABLES, SOUPS
	2035	PICKLES, SAUCES, AND SALAD DRESSINGS
	2037	FROZEN FRUITS AND VEGETABLES
	2038	FROZEN SPECIALTIES, NEC
	2041	FLOUR AND OTHER GRAIN MILL PRODUCTS
	2043	CEREAL BREAKFAST FOODS
	2044	RICE MILLING
	2045	PREPARED FLOUR MIXES AND DOUGHS
	2046	WET CORN MILLING
	2047	PET FOOD
	2048	PREPARED FEEDS, NEC
	2051	BREAD, CAKE, AND RELATED PRODUCTS
	2052	COOKIES AND CRACKERS
	2053	FROZEN BAKERY PRODUCTS, EXC. BREAD
	2061	RAW CANE SUGAR
	2062	CANE SUGAR REFINING
	2063	BEET SUGAR
	2064	CANDY AND OTHER CONFECTIONARY PRODUCTS
	2066	CHOCOLATE AND COCOA PRODUCTS
	2067	CHEWING GUM
	2068	SALTED AND ROASTED NUTS AND SEEDS
	2074	COTTONSEED OIL MILLS
	2075	SOYBEAN OIL MILLS
	2076	VEGETABLE OIL MILLS, NEC
	2077	ANIMAL AND MARINE FATS AND OILS
	2079	EDIBLE FATS AND OILS, NEC
	2082	MALT BEVERAGES
	2083	MALT

TABLE I - SIC CODES BY INDUSTRY CLASS

IN CL	SIC CODE	DESCRIPTION
	2084	WINES, BRANDY, AND BRANDY SPIRITS
	2085	DISTILLED AND BLENDED LIQUOR
	2086	BOTTLED AND CANNED SOFT DRINKS
	2087	FLAVORING EXTRACTS AND SYRUPS, NEC
	2091	CANNED AND CURED FISH AND SEAFOOD
	2092	FRESH OR FROZEN PREPARED FISH
	2095	ROASTED COFFEE
	2096	POTATO CHIPS, CORN CHIPS AND SIMILAR SNACKS
	2097	MANUFACTURED ICE
	2098	MACARONI AND SPAGHETTI
	2099	FOOD PREPARATIONS, NEC
	2111	CIGARETTES
	2121	CIGARS
	2131	CHEWING AND SMOKING TOBACCO
	2141	TOBACCO STEMMING AND REDRYING
	2841	SOAP AND OTHER DETERGENTS
	2842	POLISHES AND SANITATION GOODS
	2843	SURFACE ACTIVE AGENTS
	2844	TOILET PREPARATIONS
P7		PETROLEUM
	1311	CRUDE PETROLEUM AND NATURAL GAS
	1321	NATURAL GAS LIQUIDS
	1381	DRILLING OIL AND GAS WELLS
	1382	OIL AND GAS EXPLORATION SERVICES
	1389	OIL AND GAS FIELD SERVICES, NEC
	2911	PETROLEUM REFINING
	2951	ASPHALT PAVING MIXTURES AND BLOCKS
	2952	ASPHALT FELTS AND COATINGS
	2992	LUBRICATING OILS AND GREASES
	2999	PRODUCTS OF PETROLEUM AND COAL, NEC
	4612	CRUDE PETROLEUM PIPELINES
	4613	REFINED PETROLEUM PIPELINES
	4619	PIPELINES, NEC
	4922	NATURAL GAS TRANSMISSION
	5171	PETROLEUM BULK STATIONS AND TERMINALS
	5172	PETROLEUM PRODUCTS, NEC
	5541	GASOLINE SERVICE STATIONS
P8		CHEMICALS
	2812	ALKALIES AND CHLORINE
	2813	INDUSTRIAL GASES
	2816	INORGANIC PIGMENTS
	2819	INDUSTRIAL INORGANIC CHEMICALS, NEC
	2821	PLASTICS MATERIALS AND RESINS
	2822	SYNTHETIC RUBBER
	2823	CELLULOSIC MANMADE FIBERS
	2824	ORGANIC FIBERS, NONCELLULOSIC
	2851	PAINTS AND ALLIED PRODUCTS

TABLE I - SIC CODES BY INDUSTRY CLASS

IN CL	SIC CODE	DESCRIPTION
	2861	GUM AND WOOD CHEMICALS
	2865	CYCLIC CRUDES AND INTERMEDIATES
	2869	INDUSTRIAL ORGANIC CHEMICALS, NEC
	2873	NITROGENOUS FERTILIZERS
	2874	PHOSPHATIC FERTILIZERS
	2875	FERTILIZERS, MIXING ONLY
	2879	AGRICULTURAL CHEMICALS, NEC
	2891	ADHESIVES AND SEALANTS
	2892	EXPLOSIVES
	2893	PRINTING INK
	2895	CARBON BLACK
	2899	CHEMICAL PREPARATIONS, NEC
P9		MINING
	1011	IRON ORES
	1021	COPPER ORES
	1031	LEAD AND ZINC ORES
	1041	GOLD ORES
	1044	SILVER ORES
	1061	FERROALLOY ORES, EXCEPT VANADIUM
	1081	METAL MINING SERVICES
	1094	URANIUM - RADIUM - VANADIUM ORES
	1099	METALLIC ORES, NEC
	1221	BITUMINOUS COAL AND LIGNITE - SURFACE
	1222	BITUMINOUS COAL - UNDERGROUND
	1231	ANTHRACITE MINING
	1241	COAL MINING SERVICES
	1411	DIMENSION STONE
	1422	CRUSHED AND BROKEN LIMESTONE
	1423	CRUSHED AND BROKEN GRANITE
	1429	CRUSHED AND BROKEN STONE, NEC
	1442	CONSTRUCTION SAND AND GRAVEL
	1446	INDUSTRIAL SAND
	1455	KAOLIN AND BALL CLAY
	1459	CLAY AND RELATED MATERIALS, NEC
	1474	POTASH, SODA, AND BORATE MINERALS
	1475	PHOSPHATE ROCK
	1479	CHEMICAL AND FERTILIZER MINING, NEC
	1481	NONMETALLIC MINERALS SERVICES
	1499	MISCELLANEOUS NONMETALLIC MINERALS
R1		ELEMENTARY AND SECONDARY SCHOOLS
	821A	ELEM/SEC SCHOOLS - PRIVATE AND PAROCHIAL
	8211	ELEMENTARY/SECONDARY SCHOOLS - PUBLIC
	942R	ELEMENTARY/SECONDARY SCHOOLS, STATE ENTERPRISE
	952R	ELEMENTARY/SECONDARY SCHOOLS, COUNTY ENTERPRISE
	962R	ELEMENTARY/SECONDARY SCHOOLS, CITY ENTERPRISE

TABLE I - SIC CODES BY INDUSTRY CLASS

IN CL	SIC CODE	DESCRIPTION
R2		VOCATIONAL SCHOOLS - NON PROFIT
	821C	POST HIGH/VOC SCHOOLS - NON PROFIT
	942V	VOCATIONAL SCHOOLS, STATE ENTERPRISE
	952V	VOCATIONAL SCHOOLS, COUNTY ENTERPRISE
	962V	VOCATIONAL SCHOOLS, CITY ENTERPRISE
R3		CORRES., BUS., VOC. SCHOOLS-PROFIT MAKING
	8244	BUSINESS & SECRETATIAL SCHOOLS, EXCL- DP
	8249	VOCATIONAL SCHOOLS, NEC - PROFIT MAKING
	8331	JOB TRAINING AND RELEATED SERVICES
R4		REGIONAL SCHOOL CENTERS
	821B	ELEM/SEC SCHOOLS - REGIONAL CENTERS
R5		EDUCATIONAL - OTHER
	731R	PURCHASING AGENCIES, ELEM/SEC/VOC SCHOOLS
	942A	STATE BD OF EDUCATION (K-12 ONLY)
S1		BROKERS/DEALERS
	6211	SECURITY BROKERS AND DEALERS
	6221	COMMODITY CONTRACTS BROKERS AND DEALERS
S2		EXCHANGES
	623A	COMMODITY EXCHANGES
	6231	SECURITY EXCHANGES
	6282	INVESTMENT ADVICE
	6289	SECURITY AND COMMODITY SERVICES, NEC
S3		INVESTMENTS
	6722	MANAGEMENT INVESTMENT COS., OPEN-END
	6726	INVESTMENT OFFICES, NEC
	6732	EDUCATIONAL, RELIGIOUS, ETC. TRUSTS
	6733	TRUSTS, NEC
	6792	OIL ROYALTY TRADERS
	6794	PATENT OWNERS AND LESSORS
	6799	INVESTING INSTITUTIONS, NEC
TA		AUTO RENTAL SERVICES
	7514	PASSENGER CAR RENTAL
	7515	PASSENGER CAR LEASING
TB		TRAVEL AGENCIES/TOUR OPERATORS
	4724	TRAVEL AGENCIES
	4725	TOUR OPERATORS
	4729	PASSENGER TRANSPORTATION ARRANGEMENT, NEC
TC		TRUCK/TRAILER RENTALS
	7513	TRUCK RENTAL AND LEASING
	7519	UTILITY TRAILER AND RV RENTAL

TABLE I - SIC CODES BY INDUSTRY CLASS

IN CL	SIC CODE	DESCRIPTION
TD		WATER TRANSPORTATION, PASSENGER
	4481	DEEP SEA PASSENGER TRANSPORTATION, EXC. FERRY
	4482	FERRIES
	4489	WATER PASSENGER TRANSPORTATION, NEC
	4493	MARINAS
TE		AIRLINES, FREIGHT
	451A	AIR FREIGHT TRANSPORTATION
	4513	AIR COURIER SERVICES
T1		OTHER TRANSPORTATION SERVICES
	4221	FARM PRODUCT WAREHOUSING AND STORAGE
	4222	REFRIGERATED WAREHOUSING AND STORAGE
	4225	GENERAL WAREHOUSING AND STORAGE
	4226	SPECIAL WAREHOUSING AND STORAGE, NEC
	4231	TRUCKING TERMINAL FACILITIES
	4731	FREIGHT TRANSPORTATION ARRANGEMENT
	4741	RENTAL OF RAILROAD CARS
	4783	PACKING AND CRATING
	4785	INSPECTION AND FIXED FACILITIES
	4789	TRANSPORTATION SERVICES, NEC
	873T	COMMERCIAL PHYSICAL RESEARCH, TRANSPORTATION
T2		MOTOR FREIGHT
	4212	LOCAL TRUCKING, WITHOUT STORAGE
	4213	TRUCKING, EXCEPT LOCAL
	4214	LOCAL TRUCKING, WITH STORAGE
	4215	COURIER SERVICES, EXCEPT BY AIR
T3		RAILROADS, FREIGHT
	4011	RAILROADS, LINE-HAUL OPERATING, FREIGHT
	4013	SWITCHING AND TERMINAL SERVICES, FREIGHT
T4		LOCAL & HIGHWAY PASSENGER TRANSPORTATION
	4119	LOCAL PASSENGER TRANSPORTATION, NEC
	4121	TAXICABS
	4131	INTERCITY AND RURAL BUS TRANSPORTATION
	4141	LOCAL BUS CHARTER SERVICE
	4142	BUS CHARTER SERVICE, EXCEPT LOCAL
	4151	SCHOOL BUSES
	4173	BUS TERMINAL AND SERVICE FACILITIES
T5		WATER TRANSPORTATION, FREIGHT
	4412	DEEP SEA FOREIGN TRANSPORTATION OF FREIGHT
	4424	DEEP SEA DOMESTIC TRANSPORTATION OF FREIGHT
	4432	FREIGHT TRANSPORTATION ON THE GREAT LAKES
	4449	WATER TRANSPORTATION OF FREIGHT, NEC
	4491	MARINE CARGO HANDLING
	4492	TOWING AND TUGBOAT SERVICE

TABLE I - SIC CODES BY INDUSTRY CLASS

IN CL	SIC CODE	DESCRIPTION
	4499	WATER TRANSPORTATION SERVICES, NEC
T6		TRANSIT & AUTO PARKING
	4111	LOCAL AND SUBURBAN TRANSIT
	7521	AUTOMOBILE PARKING
T7		AIRLINES, PASSENGER
	4512	PASSENGER AIR TRANSPORTATION, SCHEDULED
	4522	PASSENGER AIR TRANSPORTATION, NONSCHEDULED
	4581	AIRPORTS, FLYING FIELDS, & SVCS (EXC. MUNICIPAL)
T8		RAILROADS, PASSENGER
	401A	RAILROADS, LINE-HAUL OPERATING, PASSENGER
	401B	SWITCHING AND TERMINAL SERVICES, PASSENGER
U1		UTILITIES, GAS
	4923	GAS TRANSMISSION AND DISTRIBUTION
	4924	NATURAL GAS DISTRIBUTION
	4925	GAS PRODUCTION AND/OR DISTRIBUTION
	4932	GAS AND OTHER SERVICES COMBINED
U2		UTILITIES, ELECTRIC
	4911	ELECTRIC COMPANIES AND SYSTEMS
	4931	ELECTRIC AND OTHER SERVICES COMBINED
U3		UTILITIES, COMBINATION
	4939	COMBINATION UTILITIES, NEC
U4		OTHER UTILITIES
	4941	WATER SUPPLY
	4961	STEAM SUPPLY
	4971	IRRIGATION SYSTEMS
	873U	COMMERCIAL PHYSICAL RESEARCH, UTILITIES
U5		UTILITIES, GOVERNMENT
	491B	ELECTRIC COMPANIES AND SYSTEMS
	492C	GAS TRANSMISSION AND DISTRIBUTION
	492D	NATURAL GAS DISTRIBUTION
	492E	GAS PRODUCTION AND/OR DISTRIBUTION
	493A	ELECTRIC AND OTHER SERVICES COMBINED
	493B	GAS AND OTHER SERVICES COMBINED
	493G	COMBINATION COMPANIES & SYSTEMS, NEC
	494A	WATER SUPPLY
	495B	SEWERAGE SYSTEMS
	495C	REFUSE SYSTEMS
	495G	SANITARY SERVICES, NEC
U6		UTILITIES, WASTE
	4952	SEWERAGE SYSTEMS

TABLE I - SIC CODES BY INDUSTRY CLASS

IN CL	SIC CODE	DESCRIPTION
	4953	REFUSE SYSTEMS
	4959	SANITARY SERVICES, NEC
U7		RURAL ELECTRIC COOP.
	491A	RURAL ELECTRIC ASSOCIATIONS (CO-OPS)
W1		DP LEASING COMPANIES
	7377	COMPUTER RENTAL AND LEASING
W2		DP EQUIPMENT BROKERS/DEALERS
	737K	BROKERS
W3		DP MAINTENANCE COMPANIES
	7378	COMPUTER MAINTENANCE AND REPAIR
W4		CUSTOMER SPECULATIVE - SPLIT ENTERPRISE
	737S	SPECULATIVE CUSTOMERS
X2		DOMESTIC ORDERS - OVERSEAS DESTINATION
	9997	DOMESTIC ORDERS-OVERSEAS DESTINATION
YA		FOREIGN AFFAIRS/SPECIAL OPS
	9186	CMU SPECIAL
	9199	CIA
	9201	STATE DEPT.
	9234	AID/OTHER
YB		NASA
	9020	NASA SPACE SCIENCE
	9021	NASA RESEARCH
	9022	NASA MANNED SPACE
	9027	NASA GODDARD (WASH. D.C. ONLY)
	9056	NASA SPACE STATION
	9142	NASA HQ
YC		ENERGY/TVA/COMMERCE
	9007	NRC
	9015	COMMERCE
	9016	NOAA
	9018	EPA
	9023	ERDA/CONTR
	9026	TVA
	9028	ENERGY INFO. ADMIN.
	9031	OPM
	9032	INDP. AGY.
	9033	EDUCATION
	9053	CENSUS/PAT/NBS
	9244	DOE HQ-AD

TABLE I - SIC CODES BY INDUSTRY CLASS

IN CL	SIC CODE	DESCRIPTION
YD		EXECUTIVE/LEGISLATIVE
	9210	EXEC GOVERNMENT
	9211	GENERAL ACCOUNTING OFFICE
	9213	LIBRARY CONGRESS
	9214	HOUSE OF REPRESENTATIVES
	9215	US SENATE
	9216	INTERNATIONAL
	9219	GOVERNMENT PRINTING OFFICE
YE		SBA/FTC
	9012	SBA/FTC
	9057	FCC/ICC
YF		RESTRICTED
	9042	RESTRICTED AFS
	9043	RESTRICTED SAM
	9065	RESTRICTED 1
	9240	RESTRICTED SPACE
YG		ARMY/AIR FORCE EXCHANGES (COMMISSIONABLE)
	9046	AAFES DOMESTIC
	9047	AAFES OVERSEAS
YH		INTERNATIONAL (COMMISSIONABLE)
	9217	FOREIGN GOVERNMENT EMBASSIES AND CONSULATES
YI		REGULATORY
	9003	TREASURY DEPT
	9004	IRS
	9006	SEC
	9009	NATIONAL SCIENCE FOUNDATION
	9010	FDIC
	9070	PENSIONS
	9231	BUREAU CUSTOMS
	9245	FED RESERVE BD
YJ		LABOR/GSA/SMITHSONIAN
	9002	VA ADMIN.
	9005	GSA
	9029	SMITHSONIAN / NAS / EEOC
	9040	LABOR
	9230	VA HOSPITALS
YK		NFM/FSD - COMPLEX SYS. ORG.
	901F	NFM/FSD - COMPLEX SYS. ORG.
	902F	NFM/FSD - COMPLEX SYS. ORG.
	903F	NFM/FSD - COMPLEX SYS. ORG.
	904F	NFM/FSD - COMPLEX SYS. ORG.
	905F	NFM/FSD - COMPLEX SYS. ORG.

TABLE I - SIC CODES BY INDUSTRY CLASS

IN CL	SIC CODE	DESCRIPTION
Y1		ARMY
	9044	ARMY - RFP 28W ONLY
	9048	ARMY PENTAGON/LOCAL
	9055	ARMY - FORSCOM
	9060	ARMY AMC/COMMODITY CMD
	9061	ARMY AMC/LABCOM
	9062	ARMY AMC/DEPOTS
	9063	ARMY PANAMA
	9064	ARMY AMC/TECOM
	9066	ARMY - VIABLE 28W ONLY
	9067	ARMY PERSONNEL
	9068	ARMY FINANCE
	9069	ARMY MEDICAL
	9071	ARMY RFP 28W ONLY
	9072	EUROPE 5TH SIGNAL
	9073	PACIFIC 5TH SIGNAL
	9074	ARMY PACIFIC
	9075	ARMY EUROPE
	9077	ARMY MISC. COMMANDS
	9078	ARMY - TRADOC
	9079	ARMY MTMC
	9081	ARMY AMC/CORPS OF ENGINEERS
	9082	ARMY ISEC FT. BELVOIR
	9083	ARMY NATIONAL GUARD
	9084	ARMY RESERVE
	9221	BELL LABS
	9222	ARMY TAGO
	9223	ARMY AUDIT
	9224	ARMY JAG
	9225	ARMY TROOP SUPPORT
	9226	ARMY WEST POINT
	9227	ARMY HQ FT. HAUCHUCA
	9228	ARMY ISMA FT. MONMOUTH
	9229	ARMY 7TH SIGNAL FT. RICHIE
Y2		NAVY
	9049	ICP1
	9050	NAV TELECOMMU CMD
	9051	NAVY - RESTRICTED
	9076	SPAR
	9086	ICP2
	9090	NAV EDUC/TRAINING CMD
	9091	NAV PERSONNEL/FINANCE
	9092	NAV ELECTRONICS CMD
	9093	NAV LABS/R & D CTRS
	9094	NAV CONTRACTORS
	9095	NAV MEDICAL CMD
	9097	NAV CNO/OPERATING FORCES
	9098	NAV SEA SYS CMD

TABLE I - SIC CODES BY INDUSTRY CLASS

IN CL	SIC CODE	DESCRIPTION
	9100	NAV FACILITY CMD
	9101	NAV DATA AUTOMATION CMD
	9102	NAV MILITARY SEALIFT CMD
	9103	NAV OCEANOGRAPHY CMD
	9104	NAV RESERVE CMD
	9105	NAV MATERIAL HQ
	9107	NAV SUPPLY SYS CMD
	9108	NAV AIR SYS CMD
	9111	NAV MAT. FIELD ACCOUNT
	9113	MARINE CORPS
Y3		AIR FORCE/JOINT DEFENSE
	9045	AF LESSER COMDS AND OVERSEAS
	9052	AF NON AP FND
	9099	SWPS PROJECT
	9114	AF CTRS-RES-GRD
	9116	AF CONTRACTOR - MIL SPACE
	9117	AF LOG CMD
	9118	AF EUR-PAC-ALAS
	9119	AF SYS. CMD.
	9120	AF TRAINING CMD
	9122	AF MISC.
	9123	AF COMM. CMD
	9124	AF INSP. & SAFETY
	9128	AF CONTRACTORS
	9129	AF AEROSPACE CORP
	9131	AF SYST. DEVEL. CORP
	9133	AF FSD SPACE
	9134	AF SAMSO GENERAL
	9136	AF SCF
	9137	AF SAMTEC
	9138	AF SAMSO WESTOVER
	9141	AF TEST RANGE
	9143	DCA-JT. DATA SYS. SUPT. AGENCY
	9144	DCA WORLD WIDE ON-LINE SYS.
	9145	DCA-DEF. COMM. OPER. SUPT. SYS
	9146	JCS - WISCUC
	9147	DOD-DEPENDENT SCHOOLS
	9148	DLA-DEPOTS
	9149	DLA-SUPPLY CTRS
	9150	DOD-DEF. COMM. ENGR. CTR
	9151	DLA-SVCS.CTRS
	9152	DLA-DCASRS
	9153	DOD-DEF. NUCLEAR AGENCY
	9154	DLA-OTHER
	9155	DOD-SECURITY AUDIT AGENCY
	9156	DOD-ADVNCD RSCH. PROG. AGENCY
	9157	DOD-DEF. AUDIT AGENCY
	9158	DOD-DEF. CONTRACT AUDIT AGENCY

TABLE I - SIC CODES BY INDUSTRY CLASS

IN CL	SIC CODE	DESCRIPTION
	9159	DOD COMMAND & CONTROL
	9160	DOD-OFF. SECR. DEF. FLD. AGENCY
	9161	DOD-UNIFORM SERV. UNIV. HOSP. SYS
	9165	JCS JOINT CMDS
	9233	AF AESC
	9238	AF COMMISSARY
	9239	AF MIL AIRL CMD
	9241	AIR FORCE PENTAGON (WASH. D.C. ONLY)
	9242	AF TAC
	9246	AF SAC
	9247	AF WEAPONS CONTR.
Y4		HEALTH
	9011	H&HS HRSA/ADAMHA
	9034	H&HS/SSA
	9035	H&HS/NIH
	9036	H&HS/ADMIN
	9037	H&HS/NAT. LIB. MED.
	9038	H&HS PCC INDIAN HEALTH/FDA
	9039	H&HS NIH/RJE
	9058	H&HS OASH
	9059	TERM. ACQUISITION PROJECT
Y5		FAA/TRANSPORTATION
	9000	FAA-LOCAL (WASH. D.C. ONLY)
	9001	FAA-NATIONAL
	9008	FAA - NATIONAL ADMIN.
	9014	DOT/HWY ADM/MARTME/ST. LAW
	9017	DOT
	9054	FAA - DRA
	9085	FAA - LOCAL ADMIN. (WASH. D.C. ONLY)
Y6		SECURITY/DEF INTELLIGENCE
	9080	DEF. INVESTIGATIVE UNITS
	9185	SECURITY-1
	9187	SECURITY-2
	9189	INTEL - ARMY
	9191	INTEL - NAVY
	9193	INTEL - AF
	9195	DIA
	9198	INTEL - OTHER
Y7		INTERIOR/AGRICULTURE
	9013	FARM CREDIT ADMIN.
	9019	AGRICULTURE
	9024	INTERIOR DEPT
	9025	GEOLOGICAL SURVEY
	9030	FED. CHART. INDIAN TRIBES
	9041	HOUSE URBAN DEV.

TABLE I - SIC CODES BY INDUSTRY CLASS

IN CL	SIC CODE	DESCRIPTION
	9243	AG. FT COLLINS
Y8		USPS
	9106	USPS FLD/OP SPT
	9202	USPS - NORTHEAST
	9203	USPS - EAST
	9204	USPS - SOUTH
	9205	USPS - CENTRAL
	9206	USPS - WEST
	9207	USPS - WASH
	9248	USPS/SFC-NORTHEAST
	9249	USPS/SFC-EAST
	9250	USPS/SFC-SOUTH
	9251	USPS/SFC-CENTRAL
	9252	USPS/SFC-WEST
Y9		JUSTICE/FBI
	9208	JUDICIARY
	9209	DEPT. OF JUSTICE
	9235	FBI
	9236	DRUG ENFORCEMENT ADM
	9237	DOJ-PRISONS
Z1		O.E.M. SALES - FOR SUBSEQUENT RESALE
	357X	O.E.M. SALES FOR SUBSEQUENT RESALE
	357Y	O.E.M. INSTALLATION FOR PRODUCT DEVELOPMENT/TEST
	357Z	O.E.M. DIVISION RESTRICTED ACCOUNT
Z3		SALES TO PC RETAILERS
	893R	SALES TO PC RETAILERS

Appendix: Relevant INPUT Definitions

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1. Professional Services

This category includes three submodes: consulting, education and training, and software development.

- *Consulting:* Services include management consulting (related to information systems), information systems consulting, feasibility analysis and cost-effectiveness studies, and project management assistance. Services may be related to any aspect of the information system, including equipment, software, networks and systems operations.
- *Education and Training:* Products and services related to information systems and services for the professional and end user, including computer-aided instruction, computer-based education, and vendor instruction of user personnel in operations, design, programming, and documentation.
- *Software Development:* Services include user requirements definition, systems design, contract programming, documentation, and implementation of software performed on a custom basis. Conversion and maintenance services are also included.

2. Systems Operations

Systems operations was a new delivery mode introduced in the 1990 Market Analysis and Systems Operations programs. It was created by taking the Systems Operations submode out of both Processing Services and Professional Services. For 1991 the submodes have been redefined as indicated below.

Systems operations involves the operation and management of all or a significant part of the user's information systems functions under a long-term contract. These services can be provided in either of two distinct submodes where the difference is whether the support of applications, as well as data center operations, is included.

- *Platform systems operations* - the vendor manages and operates the computer systems, often including telecommunications networks, without taking responsibility for the user's application systems.

- *Applications systems operations* - the vendor manages and operates the computer systems, often including telecommunications networks, and is also responsible for maintaining, or developing and maintaining, the user's application systems.

In the federal government market, systems operation services are also defined by equipment ownership with the terms "COCO" (Contractor-Owned, Contractor-Operated), and "GOCO" (Government-Owned, Contractor-Operated).

The ownership of the equipment, which was the previous basis for the systems operations submodes, is no longer considered critical to the commercial market. Most of the market consists of systems operations relationships using vendor-owned hardware. What is now critical is the breadth of the vendor/client relationship as it expands beyond data center management to applications management.

Systems operations vendors now provide a wide variety of services in support of existing information systems. The vendor can plan, control, provide, operate, maintain and manage any or all components of the user's information systems (equipment, networks, systems and/or application software), either at the client's site or the vendor's site. Systems operations can also be referred to as "resource management" or "facilities management."

3. Systems Integration (SI)

Systems integration is a vendor service that provides a complete solution to an information system, networking or automation requirement through the custom selection and implementation of a variety of information system products and services. A systems integrator is responsible for the overall management of a systems integration contract and is the single point of contact and responsibility to the buyer for the delivery of the specified system function, on schedule and at the contracted price.

To be included in the information services market, systems integration projects must involve some application processing component. In addition, the majority of cost must be associated with information systems products and/or services.

- *Equipment* - information processing and communications equipment required to build the systems solution. This component may include custom as well as off-the-shelf equipment to meet the unique needs of the project. The systems integration equipment category excludes turnkey systems by definition.

- *Software products* - prepackaged applications and systems software products.

- *Professional services* - the value-added component that adapts the equipment and develops, assembles, or modifies the software and hardware to meet the system's requirements. It includes all of the professional services activities required to develop, and if included in the contract, operate an information system, including consulting, program/project management, design and integration, software development, education and training, documentation, and systems operations and maintenance.

- *Other services* - most systems integration contracts include other services and product expenditures that are not easily classified elsewhere. This category includes miscellaneous items such as engineering services, automation equipment, computer supplies, business support services and supplies, and other items required for a smooth development effort.

Systems integrators perform, or manage others who perform, most or all of the following functions:

- Program management, including subcontractor management
- Needs analysis
- Specification development
- Conceptual and detailed systems design and architecture

- System component selection, modification, integration and customization
- Custom software design and development
- Custom hardware design and development
- Systems implementation, including testing, conversion and post-implementation evaluation and tuning
- Life cycle support, including
  - System documentation and user training
  - Systems operations during development
  - Systems maintenance

Appendix: Systems Operations Issues

Appendix: Systems Operations Issues

In response to queries, the following addresses three SO issues:

- Additional vendors in the SO universe
- SO totals for specific vendors
- Insurance SO processing

1. Additional Systems Operations Vendors

Systems operations market sizes, like all INPUT market sizing, is initially performed on a demand basis. That is, how and how much are corporations spending money for outside services. Vendor data is a useful crosscheck on this and, if there are wide variances, it is an indication that there may be differences in classification, or, indeed, that there are changes underway in the industry.

Systems operations is certainly an area undergoing change and is one where there is much loose and misleading terminology. However, there is also a great deal of activity that falls outside of that done by those commonly considered major players, as shown in the examples below:

- Large vendors such as First Financial Management and BDM are adding functional components to processing work so that more of their work may actually be of a systems operations nature (i.e., they perform all the processing of a business unit on a long-term basis). They do not keep track of the distinction themselves; further analysis of their work should add to their SO processing totals.

- Large information service vendors are experimenting with types of work that are more of an SO processing relationship than processing services. For instance, GTE in the retail and ADP in brokerage services are performing all the work of a client's business unit on their computers. ADP will not discuss it, but several brokers have described services that are, in effect, SO processing.

- Large and small corporations that are not formal information service firms are offering combinations of work that are SO processing rather than simply processing services. Contacts at Chase Manhattan Bank state that they are performing the full processing for mortgage divisions or other units of clients rather than just processing services. Activities in mortgage, credit account and corporate cash management must be investigated further.

- Banks, brokerages and some other companies are now performing functions for each other to reduce costs. In some cases, they are performing back office functions for business units rather than just processing. Further investigation is in process on these activities.

- Many medium to small size vendors are looking for opportunities to run all the processing work for a division or unit of a larger firm. For example, May & Speh now runs all processing for the business leasing unit of a bank.

Unique agreements by smaller information services vendors who are searching for additional means of obtaining business are adding to SO processing business.

- FDP Corporation supplies full processing services as well as turnkey systems in the insurance industry and provides sufficient services to handle full back office functions for a group of clients.

- Effective Management Systems provides full processing and administrative/clerical assistance to handle back office operations for a group of clients and receives a percentage of sales as revenue. In several situations, continuing charges are being paid for the full operation of a client's functions.

- Comtex Inc. (of NY) performs a continuing function that involves processing and administrative actions for a business unit of Bankers Trust.

- An executive of U.I.S. Inc. gives an example of one client for turnkey systems that will pay a continuing charge on a long-term basis to have all processing performed for them.

- A small turnkey software vendor has sought arrangements with customers and vendors to finance systems operations jobs for smaller food and other distributors as an alternative means of marketing work.

2. Specific Vendor Systems Operations Totals

- CSC supplied detailed information on their business in March 1991 that led to a re-evaluation of SO revenue in 1990 to $40 million.
- Further investigation of SO revenue for PMS led to a reduction in the preliminary estimate of SO revenue for 1990 to $40 million.
- McDonnell Douglas has been reducing business in IS markets other than systems integration since early last year. The major portion of remaining insurance industry business was sold to American Express.

3. Systems Operations Processing Insurance

- There are 50-plus third-party administrators (TPA) with SO processing revenue of about $250 million or about $5 million per TPA.
- There are many smaller TPA's in the marketplace.

Appendix: IS Revenues by IBM Industry

1990 VENDOR REVENUES BY IBM INDUSTRY

	Manuf. M1/5	Auto M2	Aero MA	Elect. M3	Process P1/2/3/4/9	Consumer P6	Chem./ Pharm. P8/5	Petro P7	Comm. A	Comp. Servs. B	Consult. C	Health H	Higher Ed. E
ADOBE	22097	3381	4812	9142	2012	474	353	1562	2706	1258	958	13047	7613
ADP	115813	16039	22621	42980	28890	6845	5619	21113	11088	26729	25146	57678	33540
AGS	50000	9000	9100	25000	19000	3120	2640	6072	30400	694	300	2000	5000
ALDUS	6431	926	1313	2494	1111	277	209	831	1304	623	485	6509	3431
AMERICAN MANAGEMENT SYS	7769	1296	14000	3325	9672	2316	1947	3758	19000	856	400	4376	15000
ANDERSEN CONSULTING	118000	17000	31000	43000	94000	18669	15455	41311	38192	1000	500	52000	6000
ASHTON-TATE	8799	1287	1826	3469	1347	330	251	1096	1816	859	675	9306	4661
AUTO DESK	9168	1313	1863	3540	1380	347	256	1123	1881	902	698	9513	5165
BDM	10000	12000	12000	6460	1252	1000	220	1454		150			5000
BMC SOFTWARE	5577	793	1124	2136	836	212	155	665	1080	541	421	5739	3041
BOEING	2000	181	254	483	468	119	91	318	663	1471	1119		
BOOLE & BABBAGE	5522	781	1107	2103	823	210	152	667	1100	532	414	5643	2986
BORLAND	11172	1633	2317	4401	1707	419	318	1391	2330	1082	869	12068	5581
COMPUTER ASSOC. INT.	59493	8803	12352	23468	21949	5326	4309	13710	26784	5585	4253	50622	35556
COMPUTER DATA SYSTEMS	3000	38	2000	2000	43	15	8	33	6000	124	116	2440	7000
COMPUTER HORIZONS	13000	432	5000	16000	6000	4000		6000	19000				
COMPUTER LANGUAGE RES	10488	1533	2175	4133	1604	393	299	1308	2166	1071	815	11103	6476
COMPUTER SCIENCES	58350	11500	19000	21000	78000	4000	10450	23000	36000	5410	4740	52000	7000
COMPUTER TASK GROUP	53000	13000	12200	23180	13794	3000	3080	10000	18000	2674	1800	2056	2000
COOPERS & LYBRAND	11000	9000	4000	12000	39000	10000	7810	16000	12000	1000	1000	8100	9000
CYCARE SYSTEMS												76760	
DELOITTE & TOUCHE	5625	1849	2350	4465	27788	6762	5610	13000	9600	1094	1050	18826	3356
EDS	49000	13000	29000	70000	119913	28664	24200	47387	28000	4452	3150	156821	28000
ERNST & YOUNG	11000	2028	4000	13000	7000	3000	4000	3000	17600		251	8000	8000
FISERV													
GOAL SYSTEMS	6655	926	1313	2495	1029	267	191	821	1400	618	491	6209	3236
HBO	1082	158	225	427	166	41	31	135	224	111	84	192531	669
INFORMIX	6412	948	1345	2555	989	240	185	810	1360	633	476	7063	4000
INGRES	8350	1221	1731	3289	1419	347	267	1080	1796	856	650	8778	5235
INTERMETRICS	2459	4000	7000	684	1130	309	220	408	88	42	32	509	339

1990 VENDOR REVENUES BY IBM INDUSTRY

	Manuf. M1/5	Auto M2	Aero MA	Elect. M3	Process P1/2/3/4/9	Consumer P6	Chem./ Pharm. P8/5	Petro P7	Comm. A	Comp. Servs. B	Consult. C	Health H	Higher Ed. E
KNOWLEDGEWARE	5894	862	1224	2325	891	218	166	731	1220	571	457	6364	2981
KPMG PEAT MARWICK	7112	1346	1500	2850	51000	9795	8140	13000		1944	1800	2000	8000
LEGENT	10257	1500	2128	4042	1569	384	293	1278	2124	1046	797	10848	6326
LOCKHEED	18137	2906	4140	7866	2000	275	220	967	1440	573	420	16050	11452
LOGICON													
LOTUS	39057	5239	7431	14118	5584	1518	1022	4443	7440	3365	2792	38001	14509
MARTIN MARIETTA	4675	770	8000	2090	55								1000
MC DONNELL DOUGLAS IS	52000	6878	16000	24000	12440	8000	2420	5200	16000	2796	2700	29631	2987
MICROSOFT	71341	10367	14705	27940	10862	2695	2022	8657	14504	6454	5096	70668	35576
NATIONAL DATA								2203	33576			22909	1154
NOVELL	31700	4634	6573	12489	4848	1188	904	3949	6544	3077	2465	34288	16135
NYNEX													
ORACLE	40159	5892	8366	15895	5393	1308	996	4340	12152	4182	3438	42684	20093
PANSOPHIC	14865	2276	3230	6137	2165	512	403	1732	1990	984	750	10203	5952
POLICY MANAGEMENT SYS													
PRC/ATI	4370	36			9000	1170	990	5885		7262	6900	36448	15804
PRICE WATERHOUSE	31000	6000	6800	27000	6339	4000	3000	4000	1000	514	300	8367	7000
SAIC	11000	1190	6000	3230	182	162		1504				1885	
SCS COMPUTING	3515									5624	5550	296	148
SHARED MEDICAL												382850	
SHL SYSTEMHOUSE	760	12			3000			1257	2000				2000
SOFTWARE PUB.	10632	1551	2200	4180	1613	395	301	1314	2176	1154	874	10853	7105
STERLING SOFTWARE	8598	1144	1623	3084	1145	307	209	1373	1504	1161	930	9916	5792
SUNGUARD	8373	1371	1957	3717	234	35	28	57	272	23	23	21	19
SYSTEM CENTER	4888	698	991	1882	732	185	136	595	984	488	371	5067	2957
SYSTEMATICS													
TRW	23648				553	922		9117	9313	15465	10551	29645	113284
VITALINK	3860	574	814	1547	653	157	123	504	776	400	304	4100	2444

1990 VENDOR REVENUES BY IBM INDUSTRY

	Media	Schools	State/ Loc. Gov.	Transp.	Util.	Whl.Dist.	Ret.Dist.	Finance	Insur.	Sec'ties	Fed. Gov.	TOTAL
	K	R	G	T	U	J	D	F	N	S	Y	
ADOBE	7266	2152	1134	4429	2877	11178	9246	28505	11226	6041	8029	161500
ADP	41425	9544	4705	17453	16285	245562	106339	535607	108161	111905	37912	1649000
AGS	1000	5604	46024		6000	7374	24348	31468	15014	1842	13000	314000
ALDUS	2417	958	114	2442	1380	5688	3590	13639	5633	2885	4162	68850
AMERICAN MANAGEMENT SYS	6077	7427	29000	7288	1681	1045	5005	37838	804		71120	251000
ANDERSEN CONSULTING	48805		65000	28000	51280	28000	155000	167900	99000	36180	74708	1230000
ASHTON-TATE	3314	1326	809	2852	1928	8133	4982	21964	8017	4669	5282	99000
AUTO DESK	3493	1473	826	3339	1971	8459	5093	20749	8183	4397	6118	101250
BDM			17750			3704	34332	1640			233038	340000
BMC SOFTWARE	2075	867	501	1773	1106	5222	3073	12461	5100	2641	3932	61070
BOEING	1046	5000	42000	339	713	3565	591	3128	8000		287451	359000
BOOLE & BABBAGE	2076	855	493	1755	1182	5030	3024	12323	4859	2612	3861	60111
BORLAND	4215	1659	2450	3625	2448	10355	6340	25804	10181	5468	8097	125928
COMPUTER ASSOC. INT.	26125	10521	16486	14555	21599	59314	39482	131614	66853	27932	60412	747100
COMPUTER DATA SYSTEMS	3000	1136	19000	105	59	585	148	1227	242	243	77537	126100
COMPUTER HORIZONS	7000			4000		10000		5000		4000		99432
COMPUTER LANGUAGE RES	3948	1819	969	3410	2305	9716	5948	24227	9558	5135	7601	118200
COMPUTER SCIENCES	29032	17000	90000	24023	16023	62801	31760	65710	82221		757979	1507000
COMPUTER TASK GROUP	12000	5000	9000		2000	8000	7444	11688	12084	6000		231000
COOPERS & LYBRAND	15000		20000	3696	6000	10000	14000	27884	21112	6000	4399	268000
CYCARE SYSTEMS								2669				79429
DELOITTE & TOUCHE	7725	1884	22000	8450	7574	15005	13868	12558	23049	2520	3992	220000
EDS	7000	11000	305300	5142	10122	52953	129936	232834	267991	50400	768734	2443000
ERNST & YOUNG	19000	2000	34000	4000	4000	16000	20562	23426	34133	7000		245000
FISERV								181333				181333
GOAL SYSTEMS	2695	965	657	2033	1535	5794	3699	14403	6143	3051	4744	71370
HBO	409	188	99	354	238	1005	615	2504	987	531	787	203600
INFORMIX	2387	1117	597	2094	1422	5868	3756	15084	5902	3204	4604	73050
INGRES	3172	1469	746	2691	1836	7460	4742	19322	7605	4095	6043	94200
INTERMETRICS	1262	216	394	2000	89	1507	565	934	371	198	26062	50819

1990 VENDOR REVENUES BY IBM INDUSTRY

	Media	Schools	State/ Loc. Gov.	Transp.	Util.	Whl.Dist.	Ret.Dist.	Finance	Insur.	Sec'ties	Fed. Gov.	TOTAL
	K	R	G	T	U	J	D	F	N	S	Y	
KNOWLEDGEWARE	2222	883	1257	1915	1295	5462	3339	13630	5376	2889	4283	66456
KPMG PEAT MARWICK	2000	2829	28000	3000	5000	30804	10076	23000	16084	4320	11400	245000
LEGENT	3869	1778	951	3313	2253	9494	5812	23667	9343	5016	7432	115520
LOCKHEED	5350	5582	53960	13546	1434	5484	6470	15191	6020	3240	54399	237120
LOGICON											206000	206000
LOTUS	15775	4543	3337	12176	7872	36379	19595	83362	32635	17670	25994	403855
MARTIN MARIETTA			23000								510410	550000
MC DONNELL DOUGLAS IS	15000	1368	19000	12000	5000	3000	5000	15072	26126	2700	4683	290000
MICROSOFT	28474	10734	13380	22571	15574	63990	38320	151509	59683	32110	51227	768456
NATIONAL DATA	9128	630	7451			3819	66691	66873		14679	10485	239600
NOVELL	12027	4810	7249	10111	6965	29448	17979	73174	28875	15507	22946	357884
NYNEX												
ORACLE	15879	6111	12965	10587	7673	33993	20923	90944	38970	19189	128495	550628
PANSOPHIC	4974	1671	895	3140	2118	18423	6736	29519	8783	6311	6992	140760
POLICY MANAGEMENT SYS									308070			308070
PRC/ATI	6000	6632	56090	138	14397	16986	2086	7084	322		462400	660000
PRICE WATERHOUSE		2189	13000	9412	5000	12063	3000	18000	17016		10000	195000
SAIC			14000					19680			541167	600000
SCS COMPUTING	2072	74		111	74	13579		5698	259			37000
SHARED MEDICAL												382850
SHL SYSTEMHOUSE	8000		53000			6000	17000	1232			40514	134775
SOFTWARE PUB.	3955	1979	1015	3354	2317	9835	5982	25374	8331	5373	6339	118200
STERLING SOFTWARE	3629	1675	866	2907	1613	9686	17470	25268	6703	5337	53661	165600
SUNGUARD	2274	15	107	161		223	2146	176389	12801	38714	38	248995
SYSTEM CENTER	1852	840	497	1560	1051	4491	2707	11066	4347	2345	3270	54000
SYSTEMATICS								242066				242066
TRW	23565	34535	15000	3887	13833	90730	163267	209510	65587	43612	53976	930000
VITALINK	1414	678	341	1266	844	3500	2252	9124	3584	1934	2808	44000

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